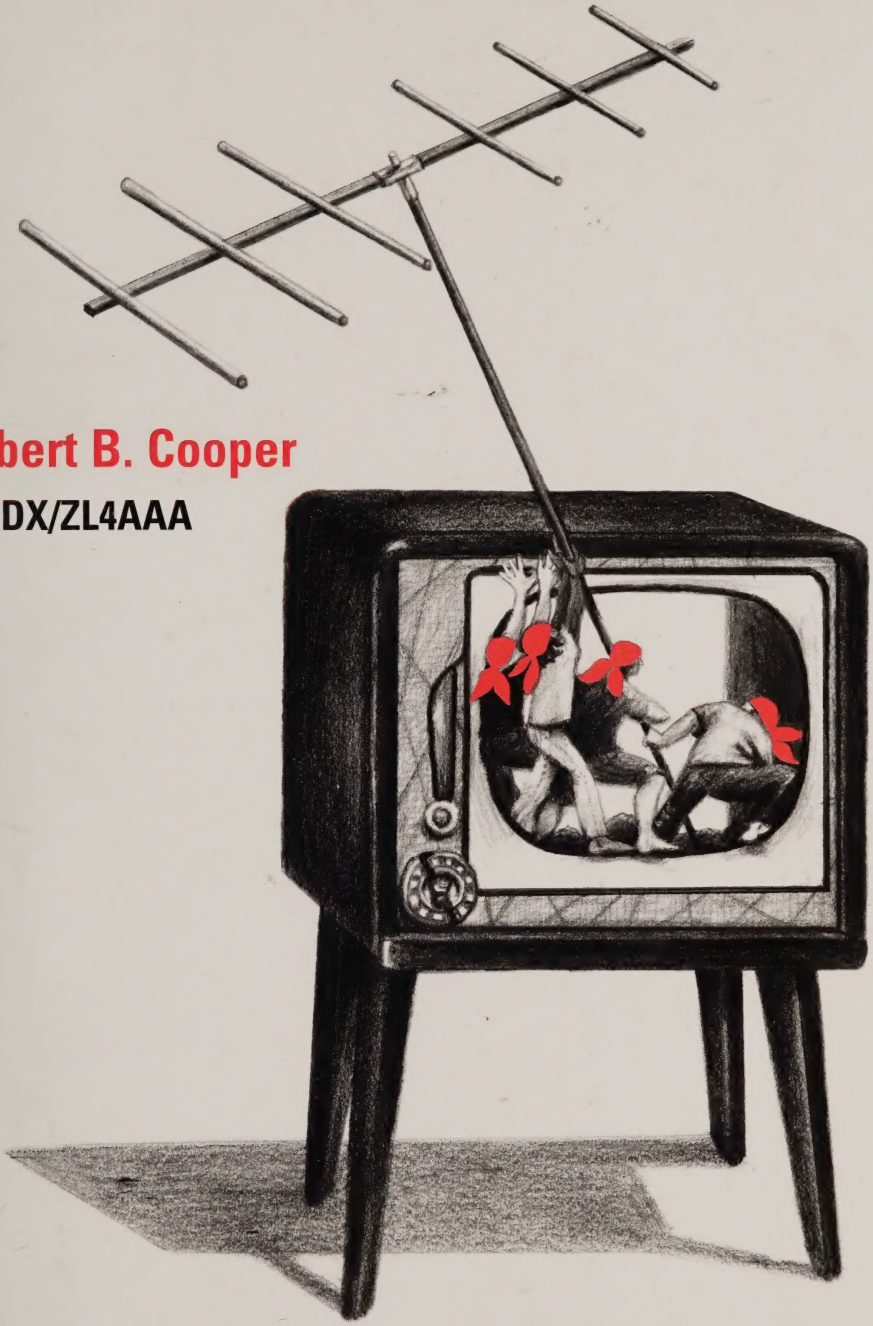
Robert B. Cooper
K6EDX/ZL4AAA



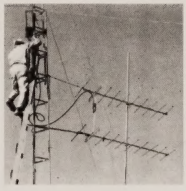
TELEVISION'S PIRATES:

HIDING BEHIND YOUR PICTURE TUBE

US $29.95

What is a Television Pirate?

By Oxford definition, a pirate is, "a person who infringes another's copyright or other business rights" and/or "someone who broadcasts without official authorization". Television programming carries copyright, television stations travel a years-long pathway seeking "official authorization" before broadcasting. Alas, not every television station has waited for nor even sought authorization, and it goes without saying, contacting those who's copyright might be violated by their transmissions. Many figures in recent history (Winston Churchill is but one example) meet our definition.



1955 on the 5,000 acre Starr Ranch, SE Montana. No TV. Solution? Build 3 TV stations to link the ranch to nearest TV 115 miles distant. No licenses, one of thousands. Charlie Starr - pirate.

2006, New York City. Inventor Kenny Schaffer has created a system allowing his home TV reception to follow him worldwide. Any channel, any-place at any time. Pirate?

Between Starr and Schaffer, tens of thousands driven by intense desire to have, for their own, access to television. Cable TV began as 'piracy'. Satellite TV was driven by rampant piracy. And now Internet is spooked by those who would 'broadcast' without authorization. This is their story, filled with emotion and determination, told with great insight by the one person who 'was there' from 1950 onward, as it unfolded and grew 'behind the tube'.

Digitized by the Internet Archive
in 2024 with funding from
Amateur Radio Digital Communications, Grant 151

https://archive.org/details/televisionspirat00coop

TELEVISION'S PIRATES:
HIDING BEHIND
YOUR PICTURE TUBE

Also by Robert B. Cooper

CB Radio Handbook (Horizons Publications, Inc. 1963)
CATV System Management (TAB Books, 1966)
CATV System Maintenance (TAB Books, 1967)
Home-Satellite Reception Handbook (Satellite Television Technology, 1979)
The Swan Spherical TVRO Antenna (Satellite Television Technology, 1979)
Satellite Television Anthology (Satellite Television Technology, 1980)
Coop's Satellite Business Opportunity Manual (Satellite Television Technology, 1980)
Coop's Basic Manual on Fine Tuning Satellite Terminals (Satellite Television Technology, 1980)
The Hidden Signals on Satellite TV (Howard W. Sams & Co, 1985)
SatFACTS Anthology (Far North Cablevision, Ltd., 2004)
CATJ - CSD Anthology (Far North Cablevision, Ltd., 2004)
TELEVISION: The technology that changed our lives (mid 2006, Far North Cablevision, Ltd.)

DXing Horizons (1960-1961)
Television Horizons (1961-1962)
Video Communications Journal (1962-1963)
Communication Horizons (1961-1962)
CB Horizons (1961-1963)
CADCO Trade Talk (1971-1973)
CATJ - Community Antenna Television Journal (1974-1979)
CSD - Coop's Satellite Digest (1979-1987)
CTD - Coop's Technology Digest (1994-2002)
SatFACTS Monthly (1994-2006)

Television's Pirates:

Hiding Behind Your Picture Tube

Robert B. Cooper

Far North Cablevision, Ltd.
PO Box 330
Mangonui, Far North
New Zealand

Copyright © 2006 by Robert B. Cooper
All rights reserved, including the right of reproduction
in whole or in part in any form

For information regarding special discounts for bulk purchase,
please contact Far North Cablevision Special Sales at
skyking@clear.net.nz

Cover design by Ina Claus

Manufactured in the United States of America

ISBN: 0-9777980-0-3

Dedicated to ever human being
who has stared at an imperfect
TV image and could care less
because the content was enthralling

Contents

A 'Message from Coop' 9
Television's Pirates: Hiding behind your picture tube 10
There's a pirate hiding inside your TV set! 11
Grey Market Mentality - the start of something big 18
A commercial business 22
You want how many E300? 29
60 days and counting 33
August 15th 36
Mexico City 39
Our evening 44
The maturing of CADCO 50
Another Joe 62
CATJ Days 78
Prelude to satellite 104
April 1975 CATJ 115
Reflections - March and April CATJ issues 122
Bigger and better - satellite delivery 129
Gridley 145
CATA Trade Conference 153
Prologue to 'private' home dishes 159
December 15, 1976 167
M-A makes a move 183
My own 'public' dish 187
A business plan for home dish systems 194
The 'original' pirates 226
Talking to the satellite 235
In my backyard 255
Big money puts on a big show 263
PBS innovation spurs the commercial nets 275
If this is Tuesday, this must be Grand Turk 281
SPTS number one 302
Look out Provo - here we come! 349
No problem m'on 361
Brown the Showman 377

Crawling to a January deadline 380
Who's on first? 385
The President wishes to meet you 395
Showdown with the programmers 407
A matter of deception 423
The rush to satellite 454
$750 + 6 zeroes 631
Sri Lanka or bust 643
The TVRO Explosion 665
Nice knowing ya! 672
Nuts 676
M-A Com's double dealing 689
Meanwhile on Johnston Atoll 695
Footloose and almost fancy free 701
Message to M-A Com: "Gotcha!" 711
Exit strategy 728
The split 742
Six months of anxiety 755
The piracy gang 763
DESUG 769
Dropping the bomb 784
Of course it was illegal 790
Pre-Summit Piracy 803
Going, going ... gone 813
Busting the Summit 821
Post Summit 832
The suit and suitor 837
The best defense is no defense? 844
The meek shall rule the earth 848
Winding down on Provo 858
Footloose and totally fancy free 886
Publishing our way into the next millennium 901
The final game 917
Where does all of this end? 927
Addendum: Accessing Coop's 60 years of publishing 928

A 'Message from Coop'

This project seriously began in 2001, slid to a back burner in 2003 as I dove with my hands flying into *"TELEVISION: The technology that changed our lives"* and then sprang back to life late in 2004. What is "Television's Pirates"? A convoluted autobiography, covering some (but hardly all) of my first 67 years (because my fortune included wondrous opportunities to be 'there' - wherever 'there' might be as an 'eyewitness'). A personal 'autobiography' (some will suggest this is a 'memoir') seldom attracts attention, or serious reading time, unless it covers something you wish to know more about. This will appeal to virtually anyone who also grew up in telecommunications, and more especially, the television world from the declining 1940s onward.

Television's Pirates:
Hiding behind your picture tube

"She came, she saw, she conquered and more important she stayed; my partner for an all-too-short end of life, Gay Van Zandt Cooper, forever and a day."

There's a pirate hiding inside your TV set!

I am the perfect age to have lived through the evolution of television as our most pervasive medium of information and entertainment, having been barely 12 years when my father, a depression era graduate civil engineer, surprised the family with a 7" Hallicrafters (brand) receiver in 1950, carried home from a trip to New York City. He was an innovative kind of guy, a mechanical gadgets inventor of some note, and we had recently moved into a brand new home of his own post-war design nestled into the hills of Cayuga Heights, several hundred feet above the New York State Finger Lake of the same name. Yes, this would be in the locale of Ithaca, home of Cornell University.

Like many preteens of that innocent post-war era, I grew up in an environment where originality was encouraged and long before it became dangerous to allow your children to roam the streets in bicycle 'gangs' I was a normal kid into blowing up mailboxes with cherry bombs, setting fire to the local woods, collecting Indian Head pennies and passionate about the one real 'hobby' that attracted my paper route and golf caddie earnings - short-wave radio.

"Now we need an antenna," my father explained. In 1950, if you were within 40 miles or so of a TV transmitting tower, the antenna was a comfortable collection of aluminum tubing somehow anchored to your roof or chimney. If you were beyond 40-50 miles, well, good luck. Ithaca's topography is rolling hills and while it was possible to be as much as 1,000 feet above Cayuga's waters, our home was less fortunate. Elevation was the key here - TV signals travel in straight

mostly unbending lines and in theory the TV transmitter would reach only slightly further than one might 'see' if standing atop the transmitting mast. Which explains why 40 miles was considered the 'fringe' of coverage. If you happened to be on top of a tall hill, the 40 mile range might be 60 or even 70 miles with varying degrees of success. Alas, from our home to Rochester's only television station was nearly 100 miles as the TV signal flew. And we did not live on top of a hill, merely along the slope.

Within weeks a massive 80 foot steel mast of my father's design was precariously anchored just outside the living room back door while matched at the top, an equally over sized collection of aluminum tubing carefully fabricated by an electronic engineer who worked for my father. The results were at best disappointing; for a few minutes at a time we could gather around the tiny screen and actually decipher through a blizzard of 'snow' a human figure or two accompanied by raspy sound (determining whether the white glob on the screen was Kate Smith's face, or, the "moon coming over the mountain", was an early test of 'reception quality'!). Neighbors were of course intensely interested in our 'experiment' although most quick to recite the advice found in literature of the era - "Give it up, you are too far away from the transmitter."

Another local group was equally interested and more supportive; the Ithaca folks who stocked and sold radio sets and record players. If - make that IF - we could produce watchable television, then our pioneering would lead to hundreds and perhaps thousands of other families taking the TV plunge. Within weeks, our home at 540 Cayuga Heights Road was overrun with loaner television receivers.

"Here, try it - it's on loan from our radio wholesale supplier - see if you can make it work" was the message as large shipping cartons piled up in our garage. For over a year, as many as 10 'loaner' model TVs (from brand names long forgotten - Emerson, Sylvania, Dumont) simultaneously consumed two walls in our living room (much to my mother's disgust) as each newly designed 'super-sensitive fringe area' model appeared in the marketplace and was zipped to our home. It was pretty heady stuff for a 12-year old who had been assigned the task of systematically moving the aerial connection from one TV to another for a '30 minute test' and then charged with writing down the results on a logging form my dad had created. Some, of course, worked much better than others and being a curious sort, I attempted to work out why, which led me to several trade magazines of the era.

It was here, in *Radio Electronics* and *Radio/TV News*, I discovered

the hive of activity occurring in our living room was a carbon copy of thousands of other 'fringe area reception' homes throughout the United States (and Canada). It was also here where I located a small classified advertisement from a man living in rural Minnesota who solved his distant-television reception by building an elaborate (gigantic is the correct term) wire antenna known as a 'rhombic'. Sending off $5 from my newspaper route earnings, I was rewarded with a notebook describing in step by step fashion how this miracle antenna could be duplicated.

It seemed like a fantasy to my father: some precision lengths of wire, suspended on poles (or, trees in my case) after being carefully directed at the distant Rochester TV transmitter. I followed the directions without deviation until I came to devices called 'insulators'; common in the ham radio world, uncommon beyond. Nobody in Ithaca seemed to have what I needed so out into my father's workshop and using plastic pipe, fabricating my own.

It was a test in perseverance - weeks of labor, measuring and remeasuring until finally the big day arrived - connect it to the TV sets in the living room using lead-in wire I was also forced to create in the shop because nobody in Ithaca had the correct item available.

Did it work? Far beyond expectations. Not only did the TV signal from Rochester's WHAM-TV clear up remarkably, but we were now also receiving a second station, WBEN in Buffalo, some 150 miles away! And so I was launched on a lifetime of chasing TV reception from isolated locations around the globe.

Word of our 'miracle reception' spread rapidly throughout the Ithaca region. All around me, neighbors borrowed my set of plans to build their own rhombic antennas. Further up the hills, where folks lived high enough to duplicate our reception without yard-filling hanks of wire, our success was like a fertilizer spread on a young garden in the spring. TV antennas, the conventional if still large fringe-area models, sprouted on rooftops throughout my newspaper route. TV had come to at least some portions of Ithaca.

Fast forward now to 2005. I live in rural New Zealand (which in fact describes most of New Zealand). Here, I am fortunate to have a working telephone, even more fortunate to have a newly available 'ADSL' or broadband telephone connection. With it, I am able to download massive computer files in seconds. And, this is the trick, enter some magic numbers and be 'spaceshifted' 9,000 miles to New York (City) where a friend has a rather nifty new invention operating. Through his magic, and my ADSL, there appears on my PC screen a list

of more than 50 Time-Warner cable TV channels. Using the cursor and the PC mouse, I select a channel I wish and within seconds I have been 'spaceshifted' to Kenny's apartment on West 58th Street where any of his subscription-paid cable channels will be electronically sent to my New Zealand PC. This is one very gigantic leap in technology from struggling to watch Kate Smith sing about the moon coming over the mountain. And it has happened during my lifetime - from Kate Smith buried in a snow storm to 'any TV channel from anyplace in the world to any other place in the world'.

We tend to think of such strides in technology as originating through laboratories maintained by major firms, such as General Electric, RCA or Siemens. In fact, as you are about to discover - perhaps for the first time - almost none of this transition can be traced to traditional commercial sources. Moreover, the folks who *really* brought you these advances were as often as not considered social and technological misfits. In a word, they were 'pirates' - individuals operating beyond the fringes of normal corporate engineering and outside of communications law, who individually brought special skills to complex technology solutions which had eluded 'the big guys' for decades.

The popular literature is resplendent with accreditation citing RCA as the originator of modern television. Yes, RCA and its highly skilled and egocentric President David Sarnoff made their contributions, but virtually all of the pivotal advances that resulted in RCA demonstrating the first American 'public TV' at the 1939 World's Fair held on Long Island came from outside the RCA facility; a subject for another time (see "TELEVISION: The technology that changed our lives," by this author).

Television in the United States/Canada grew because of public demand. When 'normal' rooftop aerial reception ceased to function between 40 and 50 miles from the transmitter, individuals, not related to RCA nor GE or any other major corporation, worked out technology to extend the TV station coverage to 75, 100, 150, even 200 miles. In the 1950s, millions of homes far removed from their nearest TV transmitter had television, against all odds, because cable television entrepreneurs, TV translator builders, and folks like John Winegard (The Winegard Company, Burlington, Iowa - a designer and manufacturer of 'fringe area' television antennas) worked out new technology to make it happen. In this era, cable television folks were routinely labelled 'pirates' by the broadcasters and even the TV networks. The unfriendly terminology, pirate, would endure with fluid meanings until at least present day 2006.

Television has always existed under the shadow of 'copyright' - a law 'modernised' in 1909, but not again until the 1980s, which dictated how, when and where someone could create television reception and then 'share' it with friends and neighbors. Cable, or as originally dubbed, Community Antenna Television (CATV), was the first powerful challenger of the 1909 law. Using technology created by folks like John Winegard and dozens more - myself included - cable operators were able to extend normal coverage of a TV station to 200 miles and beyond. As often as not, this was done for a community that by happenstance existed 200 miles (or more) from the nearest TV station. In effect, it was a 'bonus audience' for Green Bay's WBAY-TV in such diverse locations as Port Arthur, Ontario (some 305 miles from Green Bay). But as CATV grew, it became apparent that cable television could also do much more - such as extending 7 channels of quality Los Angeles television to nearby areas like Santa Barbara (California). And this is where the excrement attached to the fan.

Prior to cable's arrival, Santa Barbara already had television - one channel. When a cable entrepreneur worked out a system to connect homes there to Los Angeles television, local station KEYT in Santa Barbara saw financial gloom on the horizon. Whereas prior to cable, KEYT had 100% (or close to it) of the viewing audience, with the advent of cable, their 'share of audience' dropped - sometimes to 1/8th of 100%. This, of course, directly attacked their annual financial bottom line - fewer viewers equalled less money for their commercials. And even closer to home, Santa Barbara's lone Ford dealer was now battling Los Angeles' multiple Ford dealers who, as a category, sold cars for less because of their volume and marketplace competition. KEYT ran to the federal government for help: 'save us from cable TV or we may be forced out of business!'

Repeat this scenario in Wilmington, North Carolina and a dozen other cities where only one TV station was operating and you instantly had the entire broadcast TV world coalesced into a fighting force and labelling all cable TV as 'piracy'. The roots for early television came from 1930-era radio networking. Individual stations, such as KEYT, became 'network affiliates' agreeing to carry or rebroadcast certain programming from the New York and/or Los Angeles source(s). When KEYT carried a CBS program, a hypothetical circle drawn around its transmitter site defined its 'exclusive coverage area'. Within that circle, all homes with television were credited to KEYT and it was 'paid' advertising money based upon that number of homes. Ed Sullivan's 'Toast of the Town' Sunday night program created huge sums of advertising

money for CBS and a fractional percentage of that income gravitated down to KEYT. Before cable television, the presumption was that if Toast of the Town attracted 30% of the viewing audience on a Sunday night, KEYT would be paid proportionately for 'delivering' that number of homes to CBS and the advertisers for Toast. Cable changed that, big time.

Now Santa Barbara cable-connected homes had two choices for Toast - KEYT and Los Angeles CBS station KNXT. It was logical that at least half of that 30%, or 15%, might just as well be watching Toast on KNXT. So why should KEYT be paid for delivering 30% if in fact it was more likely delivering 15%? Network affiliation agreements, such as between KEYT and CBS, 'guaranteed' the Santa Barbara station exclusive access to Toast (and all other CBS programs carried) but cable had done an end run around KEYT by importing out-of-market stations carrying the same program, at the same time.

In fact, for most KEYT homes delivered, there was no second channel choice at all - those without cable. So KEYT existed as a noncompetition 'island' in the television world, attracting close to 100% of the TV sets it served; Santa Barbara's only TV station. Suddenly, with cable, not only was 'Toast' running head to head with KNXT's 'Toast' but cable viewers now had access to 6 other Los Angeles channels which further reduced the KEYT audience at any given measurement-instant. Cable TV operators (until 1972) existed outside of the 'copyright world' which broadcasters (and supportive court decisions) had carefully crafted to serve their own financial statement bottom-line requirements. And that made cable operators 'pirates'.

This is the story, from my proactive participation, of how all of this gradually resolved into the TV world you have today in your home. It was, as RCA engineer George H. Brown dubbed it in his 1979 recitation of how RCA 'invented' TV, (*and part of which I was*, Angus Cupar Publishers, Princeton, NJ), "the result of individual creativity by folks you have never heard about doing things you can but imagine 50 years hence." Ike Blonder and Ben Tongue (the corporate partners in Blonder Tongue Labs), Milton J. (for Jerrold) Shapp (originally the Jerrold Company) were pioneers of limited technical fame and recognition only by their peers. Keith Anderson was a self-taught engineer in South Dakota who basically told the US Government, "shove your rules up your butt," as he created devices to transport TV signals 300 miles or more. Oliver Swan moved from a small family operated TV antenna business in Stockton, California to rural southern Arizona where he took great pride in producing high quality, reliable television reception

from stations as far as 400 miles distant. Canadian David Brough made it his mission in life to extend first-time television to tiny enclaves of population scattered along and above the Arctic Circle. Satellite TV pioneer Bob Behar circumnavigated the globe almost monthly for several years bringing 'live America television' to such diverse locations as the Riyadh (Saudi Arabia) and Manila (the Philippines). Fellow satellite system entrepreneur Peter Sutro changed the lifestyle and vacation desirability of islands throughout the Eastern Caribbean by introducing American television to folks who struggled, at best, with poor quality, one channel 'local' service.

'Pirates', one and all. More often than not, totally self taught, creating tiny electronic circuits and massive reception antennas to blaze trails of 'first time television' to, quite literally, the four corners of the globe. This is their story, and in it there are the seeds of the television reception you enjoy today. For without these creative folks, your television, in whatever form, would truly have been, 'invented by RCA'. We can all be thankful this was not the case!

Grey Market Mentality - the start of something big

Late in 1969 while 'puttering' on my Oklahoma City garage work bench, inspiration struck. I had been wrestling with a TV reception problem, which originated while I was living on the island of St Croix in the US Virgin islands (1967-1968).

"How do you extract a very weak, distant source TV channel signal (call it channel 7) from aside a very powerful, local (call it channel 8) TV signal?" Technically, the standard TV receiver lacked adequate 'selectivity' to do what I wanted to do, having not been designed for such service. Various single-frequency attenuator devices existed (notably the Jerrold Trap-Ease, a clever if limited application consumer gadget) but as they only attenuated the single frequency to which they were tuned, that left remaining all of the 'sideband' and other information the local TV channel was emitting. "Obviously," thought I, "I need a broad-band attenuator - one capable of removing an entire TV channel" but - and this was key - without degrading the immediately adjacent channel/frequency much weaker signal in the process (it was already weak and making it weaker only complicated the problem).

There was more. The distant TV signal needed to be built up in signal strength with a sufficiently large receiving antenna array, but unfortunately not enough to produce A or even B grade pictures. The antenna was important but more was required. A suitable 'very low noise, high gain amplifier' must also be used. No such device existed. The equipment that did exist was going to amplify the strong local station almost as much as the distant channel - the last thing I needed!

The inspiration: An article in a ham radio technical magazine (*Ham Radio*) described a mechanical device that looked more like a plumbing fixture than something electrons moved through; the 'Interdigital Filter'. The creative New Jersey ham who wrote about the gadget had designed it to eliminate unwanted interfering signals from an amateur radio two meter (144 MHz) receiver. Construction was dead simple - first you found or created an aluminum box approximately 17" deep, 3 inches tall and 15 - 19" in width. Inside of this box you placed strategically some lengths of 1/2" diameter copper tubing, appropriately mounted and insulated so as to form 'tuned circuits'. The radio spectrum (with all signals present including those you did not want) came into one side, and at the opposite side only the circuit-selected frequency or frequencies left the box.

But his interdigital (one of those really nifty descriptive terms so rarely encountered today) design was for a very narrow set of frequencies and in my case the frequencies coming out of the filter had to be precisely as wide as one single TV channel; the 'weak' one immediately adjacent to the strong one you were trying to eliminate. Moreover, even the desired signals going through the box were made weaker (attenuated).

At the time I had been experimenting on my work bench with a new technology that replaced radio circuit 'tuned networks'. And something quite novel (for 1969). You began with a piece of printed circuit board, covered in copper, and you laid out on the board a strange looking 'spiral'; a work of art at this point with all of the variations one might expect from essentially free-hand sketches. I had progressed to a modest level of achievement conscious the dimensions of the spiral and the spacing between the turns was critical in the design. Once the artwork was laid out, the copper board was placed into an 'acid etching bath' for 30 minutes, washed in clean water and what you had left was just the spiral; the remainder of the copper on the board had been etched ('eaten') away by the chemical solution. All of this was being done on a crammed garage workbench using my wife's Pyrex baking dishes for the chemistry and crude local hardware store grade tools.

Could the etched spirals be a suitable substitute for the copper pipes inside of the large aluminum box? Did they have to be inside of a box at all? Could they be adjusted so as to tune just a single TV channel and eliminate everything else?

As often happens in life, but equally often goes unnoticed, there was an answer in a just-released new product statement from a little

known firm in California; Siliconix. They had created a new type of transistor which they called a 'J-FET'. This tiny transistor had technical characteristics which appeared to make it ideal for low noise amplification of TV signals. Moreover, unlike many firms, Siliconix was pricing their new transistor very reasonably. As a ham radio operator, I knew how to get fast delivery of samples for new products and Siliconix obliged with an even dozen type E300 J-FETs.

Now the clever part. Having built a couple of the large aluminum box version interdigital filters, I took one apart and installed first one and later two of the FETs. I reasoned that if the copper pipe inside the case could be tuned to a precise frequency with a capacitor tuning device, the same rod properly isolated from the box (ground) could also function as the 'tuned circuit for the J-FET. Inside the copper box, in one version, I had seven copper tubes. First two and later four of those 'pipes' I modified to become a part of J-FET tuned stages.

This gave me (after several days of cut and try experimentation) a new gadget. An interdigital (bandpass) filter as described in Ham Radio but with the advantage of also being a low noise signal amplifier. It worked so well and I was so pleased that I immediately sat down and armed with photographs taken on my work bench created a series of articles for Ham Radio myself. People do like to share their discoveries! I also filed patent applications and was eventually awarded 'Letters of Patent' for the interdigital amplifier device.

But the device was physically large, cumbersome to use and while very stable in operation not exactly what the world was waiting for. I priced the cost of construction in quantity, coming to the conclusion that this labor intensive item was going to have to sell for many hundreds of US dollars to be profitable.

Back to the spiral on copper printed circuit board. For my testing I used a larger-than-life TV aerial above my Oklahoma City suburban home pointed at Wichita, Kansas; 165 miles north of me; a reflection of my first TV experience in Ithaca. Wichita had TV transmitters on channels 3 and 10 whereas Oklahoma City had TV transmitters on channels 4 and 9. This was the perfect (as in almost impossible) test situation because my home was south of the Oklahoma City TV transmitters and to point my antenna at Wichita was to point at the local transmitters - less than 5 miles distant. Using the aluminum case amplified interdigital gadgets, I was watching Wichita television 100% of the time (not always great, mind you, but the reception antenna was a household type, even if high above ground). The theorem became reality; it was possible to totally eliminate an extremely strong, local

to you, TV transmitter on one channel and watch the distant station on a numerically adjacent channel.

I was now six months into the project. The spiral wound printed circuit inductors were not totally new but what I did next was. They had to replace the copper rods and the large bulk and high costs associated with the original prototypes. I now understood how to marry Siliconix E300 transistors with electronic circuits to gain both selectivity and gain. Translating those copper tubes into functional spiral printed circuits was another six month effort. At the end of this rainbow would be low production costs, very precise duplication product after product (a function of having 'master designs' on film for the etched inductor segments) and, as I was fast learning, the ability to make extremely small (1mm and less) changes in the spiral designs and effect significant improvement (or degradation, as was more often true!) in the performance of the system. It was one step forward, two steps backward version by version..

I quickly lost track of how many hand-done spiral boards were created, had Siliconix J-FETs installed and measurements made. Months later I would haul off (yeah, a dumb thing to do!) hundreds of boards to the dump. Less the precious transistors of course.

A commercial business

Approaching the first anniversary of building my first Interdigital filter from aluminum and copper, I shut the door to the garage work shop and forced myself to think about the commercial possibilities. The first and most obvious were the cable TV folk. They were always trying to create TV signals from 'space' (not Arthur C. Clarke's space - this is 1970, years before satellites) by building huge antennas and buying 'super low noise, high gain amplifiers' from firms such as Jerrold or Blonder-Tongue. And they had bucks to spend. OK - this was one commercial possibility. Another was the two-way radio industry and their repeater sites. As 2-way radio repeaters had mushroomed, and more and more were ending up parked on the same or nearby hill and mountain top locations, they were creating interference for one another. They obviously needed better filters and were at the time using some pretty complex 'cavity filters' that cost more than $1.00 each. I would shortly buy a plane ticket to Chicago and sit down with a VP of engineering at Motorola in Chicago to discuss this (not one of the smarter things I ever did; 'Patent Pending' did essentially nothing to the folks at Motorola except raise their eyebrows a fraction). But neither of these were 'big markets'. Time for lateral thinking.

At that point in time, the American passion was for NFL and AFL football games played on Sundays across the United States. The professional football teams had taken a very intense, commercial, dollar protecting interest in their Sunday games being available on television. They had convinced the United States Congress that they should be allowed to 'withhold television broadcasting rights' for their home cities to encourage people to attend the games 'live' and pay big money

for tickets. There was an exception, usually invoked in the last 24 hours before game time - if the game was 'sold out' then the event could be home town televised. At that point the teams did not care if the game was televised - they had their stadium ticket money!

These clever football folks wanted the biggest dollar they could get from television, *and* the stadium full as well. So they created with the sanction of Congress a law - the games would be, could be, 'blacked out' locally but they would still be available from TV stations far enough away that folks in the home town could not pick them up (typically 75 miles and more distant).

You know what happened next.

Well, you *almos*t know. As a prolific writer from the late 1950s, I had gained the valuable friendship of a number of influential magazine editors in the telecommunications field. And it didn't hurt that from 1960 to 1964 I had published five monthly magazines of my own. We - the editors and I - were part of a small, elite 'club'.

What was the largest circulation electronic enthusiast magazine in the world? At the time, Popular Electronics - a Ziff Davis book with around 1.5 million per month sold, mostly on news stands. I called Oliver (Perry) Ferrell, editor:

"Perry - Bob (Cooper) here. I have a project and I would like the front cover of PE (Popular Electronics) in September." The September (1971) issue would be on the news-stands in mid-August, just as the American professional football season was starting pre-season games. I described the project. Perry was warming up. "What will we call this thing?" I suggested something he did not like and he came back; "(the) All American Sports Amplifier." It was mid-May and the die was cast. Perry needed a complete article by early June.

He went to work on a suitable front cover photograph while I focused on turning something scattered over my garage work shop bench into a complete product in 3 weeks time. He had the easy job. As soon as he popped out the name a vision formed in my mind for the front cover. 'Joe Namath - dressed to kill - holding in front of his chin the AASA' (we were already calling it by a short form label!). Being Ziff Davis, a $10,000 or larger fee for Namath to pose was not a big problem. Pop'Tronics might sell an extra 10, 20, even 50 thousand news stand copies with Namath and football on the front cover in August. Everyone was very excited.

Now, when I am excited, I manage on little sleep. That was good for during the next three weeks I would get only a couple of hours per night. I had two immediate problems; creating one 'box' for Perry,

and, then creating thousands more!

First, create one box - for Joe Namath to hold in the photo. It didn't even have to have anything inside of it. Just a box, attractive as we could make it in a few days time, properly inscribed and looking like it was worth people's time and attention. Numerous phone calls back and forth to Perry.

"What color will Namath's uniform be?" It turned out he wanted double the fee if he was in an 'official' Jet's uniform because half would go to the team! I could make the one box for the photograph any color of course and Perry wanted there to be a subtle but suitable contrast between the uniform, Namath's helmet, and his face. "You know that black stuff they put on their face under there eyes to kill the sun glare?" he asked me during one of these calls. I did. "We want the photo to be authentic - as if he just stepped off the field. So remember these two thick black marks on his face as you select the color. By the way, how is it coming?"

A local sheet metal firm bent me up a half dozen aluminum cases. A friend suggested plastic end caps but we could not manage to get a new injection mold done in time for the photo. I went into my shop late one night, found some cedar wood and laboriously (wood working was not one of my specialities) created two 'end caps' for the elongated U-shaped cases. Hanging on fishing line affixed by tiny nails, I stained them dark brown and returned to a real challenge.

The article required complete photos of the construction, step by step. Here's where the money was going to occur.

To 'justify' being in Pop'Tronics, and to keep everyone at Ziff Davis who watched over Perry's shoulder comfortable, the AASA had to be available in each of three formats:

1) First, it must be possible for a reader on his or her own to go out and acquire all of the parts and build it from the magazine article instruction.

2) Second, I would form a company and provide complete kits of all parts (including the aluminum covers and end caps and a 'affix in place after done' AASA label).

3) Third, and this would be the 'real' money - a wired and tested product which a buyer could take out of the box and following our instructions, hook up to make play.

If you are not with what 'play' means, take Dallas. Cowboy football country. Channel 7 in Tyler, a piece down the road, and channel 10 in Waco, another piece down another road, channel 6 in Wichita Falls in yet another direction - all were carrying the Cowboy home

stadium games on Sundays. Dallas had channels 4, 5, 8 and 11 locally. So for Dallas the AASA had to clean up channel 7 from channel 8, channel 6 from channel 5, or, channel 10 from channel 11. Late in July, long after Pop'Tronics was approaching the printing press, I would hand carry some units 'built for the Dallas market' down to that city, 4 hours south of Oklahoma City. There, a local TV antenna firm was ready to take me to several local sport bars where, with the prior installation of suitable antennas for channels 7 and 6, they were ready to demonstrate reception to the bar owners.

One of the bar owners was so excited that he had (unbeknownst to me) called in a reporter from a major Dallas newspaper. So as I hooked up the AASA, and the antenna guys scurried back to the roof to fine peak the newly installed antenna, this guy sat there taking notes. Never said a word as he snapped my photo standing next to the Grade B - but plenty watchable - channel 7 reception. The bar guy bought everyone a round of drinks, and rushed out to create a sign telling people (here's the trouble coming) *"Blacked Out Cowboy's Football HERE - Sunday!"*. The next morning's *Dallas Times Herald* had twin photos on the front page of the business section: me, happy with the image on channel 7, and the sign. I was not even back home in Oklahoma City when the first of several dozen threatening calls arrived from lawyers at the NFL and AFL.

Perry Ferrell got calls too. First from the same lawyers (we, in our naive way, had talked about the September issue of Pop'Tronics while in Dallas) and then from the legal staff at Ziff Davis.

"They are really angry. The you-know-what has hit the fan. They even demanded we stop the magazine at the press and kill the issue!"

I asked, "Who demanded that?" And he assured me it was not the Ziff Davis folks. "They suggested we increase the press run by another 50,000 but I think we missed that option by two hours. Now they want me to see if we can run 50,000 reprints of the article and the cover and sell it as a separate product - even before the magazine ink is dry."

The NFL's position in all of this is of passing interest as this is where the 'grey market/piracy' comes in. Back in 1960, Judge Allen K. Grim in the Federal District Court (Philadelphia) issued a ruling.

"The facts show quite clearly that the telecasting of a home game into a home territory while the game is being played has an adverse effect on the attendance at the game." He went on to define "home territory" by spelling out "a radius of 75 miles of the home stadium." I was well aware of his ruling when creating the marketing plans for the AASA. Now, with the cat out of the bag in Dallas and the NFL's legal

staff pounding on desks from coast-to-coast, they issued a press statement condemning the AASA and anyone who would be dastardly enough to acquire one. A shouting match ensued.

NFL guy Bob Cochran: "75 miles means the TV transmitter that carries the blacked out games must be far enough away to not allow reception in the home market. For example, Sacramento is blacked out from San Francisco, Lexington for Cincinnati, West Palm Beach for Miami...".

Me, for the AASA: "Right and wrong. Sacramento's TV transmitter is half way between San Francisco and Sacramento, under 50 miles from SF. West Palm Beach has their transmitters closer to the Miami market and they also are under 75 miles."

Cochran's list of cities (there were many more) was intended to discourage people from considering the AASA. All he did was get us valuable (and free) publicity. Bless him. Steve Perkins, a Sports Columnist for *The Dallas Times Herald* opined on August 31, "Science marches on and if it keeps marching in the field of electronics, pretty soon the whole state of Texas and environs down to Mexico City could be wiped out of Cowboy telecasts." He went on to describe a visit to an AASA installation. "I checked with Preston TV and at 4 PM channel 6 from Wichita Falls was coming in beautifully. And 4 PM on Sundays would be about the beginning of the final two-minute period in the Cotton Bowl."

The AASA gave some cable systems a bright thought. One serving Napa, California worked out that while Sacramento was blacked out along with San Francisco, the 49er games were being televised by KHSL, channel 12 in Chico - up the Sacramento Valley to the north. So late in the season they climbed a hill, found a suitable KHSL signal and proceeded to install our commercial version of the AASA. Then the signal was plumbed into the cable system especially for the 49er games. It was not exactly 'legal' but by the time they would get caught, the business hype would had worked in their favor. "See the 49ers LIVE on Cable TV" read the advertisements. "All the blacked out games!" Cable installers worked overtime and an hour by freeway away, in San Francisco, people heard about the opportunity. Napa motels with cable TV were booked out for every 49er home game remaining in the season.

Now the silly part. Because KHSL was not an approved channel for the cable system, and because the FCC rules only allowed them to carry KHSL programming which was not otherwise available from San Francisco and Sacramento network affiliates, the game-event was a one time thing. When CBS went to 60 Minutes (following the football

game), for example, FCC rules 60 Minutes from KHSL could not be shown on cable. So it happened that the 49er games, blacked out in San Francisco and Sacramento, were one of the few examples of (perhaps the only) KHSL *network* programming which Napa cable could actually carry - semi-legally.

The FCC had responded to Napa adding 49er games with mixed rulings. They made very certain the cable company fully understood that if even the introduction to 60 Minutes (immediately following football) appeared from KHSL, a whopping big dollar fine would be levied against them. In retrospect, what cable should have done was assign a guy or gal at the cable headend and the *instant* the game was over, throw a switch. They were lax and quite dumbly believed they could forecast the end of the game and use a time clock set days prior to switch for them.

Yes, you can guess what happened next. The game ran long, the score tied and San Francisco was driving to the goal line in the final two minutes.

The clock switched. KHSL disappeared from cable homes. And cable motels.

Thousands of well-lubricated San Francisco fans from throughout the Bay area erupted in unison. They set fire to motel beds, threw television sets from balconies into swimming pools, chased motel employees into hiding and battled with police. All because of the All American Sports Amplifier.

Returning to the rush to have one AASA in 'the hands' of Joe Namath and the tricky part - have a complete magazine article including all interior AASA photos, all schematics (there were three in all, some full page in size) in Perry's hands by a fast approaching early June date. In actual fact, the product configuration which would become the AASA had never been built! I didn't tell Perry that, of course. We were all on a very tight schedule to make the September (1971) issue of PE and if we missed this issue, well ... "maybe next year."

What I did not know - OPF did not know - was there would be no 'next year' for him at PE. This was a do-now or forget project; his health being an unspoken issue. We were too far into it to forget so onward everyone involved rushed. The circuit board design came together from separate boards on my work bench. I had fallen heir to some sweep generator test gear and for the first time could actually 'look at' the amplifier's bandpass (or pass band if you prefer) on an oscilloscope screen in my garage. Prior to that, the gear had to be hauled to a local shop where I begged and borrowed 'bench time'. Now I could work all

night and in days complete what would have previously taken weeks. Four circuit boards were built with special care - one for any (specific) channel between 2 and 6 and another for any channel between 7 and 13. Later on the 2-6 would be broken into 2-4 and 5, 6 for production tune-up reasons. I built one model using my own hands and then hauled a set of parts for the remaining two boards to a local prototype production house where a girl of perhaps 20 with tremendous soldering skills did the finished pair from my photographic-version models. These would be photographed to PE's instruction.

As we were within a week of shipping the hand-wrought model for PE's professional cover photographer, a call from OPE.

"What color is the case?" I answered, "White, as we discussed."

"Change it. We want it blue, preferably anodized blue. And ...," he paused.

"And what?"

"The artwork. The sketch you sent. Change it."

He then detailed the front cover for the first time. Joe Namath would wear a white helmet with a red center stripe, be dressed in a red uniform with white stripes. The blue background with a 'highlight back glow' would allow white to sneak around him, diffused; as if he was coming out of the blue background. So far I was very impressed.

"What we want on the front of the blue anodized unit are three sky rockets in the lower right hand side. In the upper left, our name; Popular Electronics. Just below that, 'all american sports amplifier' in Times Roman type, all lower case with three horizontal bars of color - red on the top third of the letters, white in the middle and blue at the bottom." It was of course a retrospective version of the American flag!

I was on the third page of a legal scratch pad trying to keep up with him.

"I am over-nighting our drawing in color." He meant it was coming via some sort of air courier. "A week from today, have the completed unit back here for Namath photography."

Never mind 'back here' was 1,200 miles. Or that we had to start brand new with a fresh case, somehow locate a firm to anodize it blue, get an advertising agency to drop everything and create the layout PE wanted and then by some miracle have the three color artwork done (by hand of course) within six days. Because the seventh day it would have to go by air plane to New York City. This was one of those 70's cultural differences. If you lived (and worked) in 'the city', you could get almost anything done 'overnight'. In Oklahoma, they were still arguing about whether Indians should ride in the back of muni buses.

You want how many E300?

As the two AASA models for photography and the inside article pages came into view, the photos were being taken and I was finishing the article (which I tell you now was a beauty before a guy named Milton S. Snitzer at PE got his hands on it!), it occurred to me that from the day the article left (just a few days after the model for Namath to hold flew east - perhaps the only time in history an All American Sports Amplifier rode first class in its own seat!) until the day PE hit the news-stands was only slightly longer than 8 weeks.

The good news; we would not have long to wait for consumer response. The bad news was - I had maybe 25 E-300s in stock (each high band unit used 4, low band 3) and enough 'small' parts to build not over ten boards. Not to speak of the cases, end caps, boxes to ship in, labels and... . Oh my God!

This chap at Siliconix who had been hand feeding me up to 100 E-300s at a time - never more, was my first call. I told him about the PE article, he seemed pleased. I told him about Joe Namath and he was impressed. Then I said, "say - how soon can we get delivery of 100,000 E300s"?

I thought he had hung up on me. Damn telephone circuits. Then I detected his breathing. A long 30 seconds elapsed and as I began to repeat by question he responded.

"I just had a funny thought. If we closed down all of our production lines, somehow found the raw materials, and starting cranking out E300s today we might reach 100,000 in say ....", he paused. "Two months? Of course that would mean every customer for our 200 plus other products would have to wait while we did this for you. Can we

settle for 1,000 in say ..." the sound of papers shuffling and a desk calculator grinding ... "two months?"

A deep breath; me. And my own calculator. 1,000 divided by 4 was 250 high band units. 'Gawd' I expected to sell that number the day PE hit the news-stands!

Worse than that, every E300 had to be individually optimized once in the circuit. The +10 volt operating voltage applied to the source lead flowed through a resistor. The value of that resistor determined the gain and more important the noise figure of the E300 stage. Stick the wrong resistor in the source lead and the E300 would 'play' badly. Or not at all. I started to explain that to the Siliconix guy and suddenly it hit me.

"I know more about his field effect transistor than he does!" Probably someplace at Siliconix there was a developmental engineer who would understand this and agree with me; this was not the guy. So I moved to defensive step two.

"Ten percent of those you have sent are not useable" I began, neglecting to mention that after the alignment person went through each stage selecting a resistor value between 91 and 560 ohms to optimize the stage, if the stage didn't play properly we would have to tear out the FET and substitute a new one.

"10% of 1,000 is 100 which if they are destined to go into four-FET high band amplifiers means that's 25 we cannot ship". I repeated the important number. "100,000 - here by August 1."

He was not a happy person as we hung up but then he had a problem. Ten minutes later the President of Siliconix called me.

"I understand we have a problem," he began. Now, Siliconix had been very-very good to me. Letting me play for over a year with a wide variety of parts - some still developmental including one that would later replace the 300 (the U310) with even better performance. "Tell me about this Joe Namath thing."

I did. He listened patiently, never interrupting, obviously looking for some way to accommodate me. He had a question at the end of my repeat.

"And how do you plan to pay us for these?"

Being so involved in the PE aspect of getting the AASA rolling, I had totally neglected to think about such things. "Pay" meant money. A quick $250,000 or so just to Siliconix. Not to speak of the rest of the suppliers. My mind wandered to what the response would be when I went to the metal fabrication shop and asked them for 25,000 cases. Not good. For the first time I realized I was no longer in my garage

building equipment by hand. "I guess we are not in Kansas anymore," I answered - a not so obvious reference to the Wizard of Oz.

"OK Larry (that was his name). You figure out how you can get me 100,000 E300s with a backup order for another 100,000 (sometimes the best defence is a strong offence) and I'll figure out how we are going to pay you." We bid each other good bye, promising to talk the following day.

With similar responses I worked my way through the parts list, trying to locate firms that could or, more precisely, would sell us the quantity of parts we needed for the first 25,000 AASA units. The low-band model with only three E300s had 14 Elmenco-Arco trimmer capacitors - each. That worked out to 350,000 Elmenco-Arco parts. Their sales guy went from ecstasy to righteous indignation when I called. That was several month's production for them and all - as in all - of the values I needed (they were not all the same, 4 of one value, 2 of another, 8 of another) were already in back order status "Maybe by December I can let you have a part of this order," he suggested. That was when I became downright indignant. But I had to be careful - just as Siliconix was the *only* source for E300s or anything remotely like the transistor, Elmeno-Arco was the only source for the tuning capacitors. And they knew this.

"If you wanted that number in July, why didn't you call us in January or last December?" he asked. I decided not to try to explain to him that in four weeks this entire project had gone from a bench top game I was playing in my garage to Joe Namath on the front cover of a national magazine.

As much 'fun' as chasing parts was, it would not compare with chasing (1) a place to do this, (2) a staff to do it with. Now I was losing real sleep, not merely over worked and the clock was racing.

The magic box for Joe Namath was on an air plane riding first class in its own seat. OPF on the telephone, assuring me a member of his staff would meet the air plane and pickup the 'unattended passenger'.

"We have a change in plans," he said next. He sounded so bad I feared the worst. Like perhaps someone high up in Ziff Davis telling him to 'can' the AASA for September's cover.

"Joe Namath's business agent came by to pick up the check. He asked me to show him the cover mock-up which I did."

Silence. Which I broke.

"Let me guess - he didn't like something?"

OPF cleared his throat. "More than that. He looked at the large white type that will appear above Joe's head to the left - and exploded."

I glanced at my own copy. It read, ' Selective TV Preamp Brings In Blacked-Out Sports'.

OPF continued. "He asked me to explain what this 'gadget does' and I explained it to him. You know, they never asked before."

Silence.

"Why would he care what the cover says?" I asked.

"This is no dumb guy. He instantly saw that if Joe is holding this on the front cover, it is a form of authentication. The cover says, 'Joe Namath - sports legend - supports people watching Sunday football games that the NFL and AFL have blacked out in their region.' And he said the check for 20 G's would be chicken feed compared to the fine they would levy against Joe. I'm actually glad this happened. If he had never seen the cover, if we had gone on the news-stands, and Joe had been the target of a pro football witch hunt, he'd have been in big trouble."

"Yeah," I responded, "but think of how all of the newspapers and all of the sport casters would have reported the story. Hell, you would have had to reprint not 50,000 but more like 250,000 copies of September!"

"Perhaps, but it's dead now. No Joe Namath. So we have a model who looks as close to Joe as we dare to go who will shoot it tomorrow."

And so we did. And that's how I 'almost came to know Joe Namath'.

60 DAYS AND COUNTING

The cover was shot, the beautiful and fun text I had created was in the without-mercy hands of soon-to-replace OPF Milton Snitzer. It would end up running 9-1/2 pages, the longest article to ever appear in a single issue. And that was after Snitzer hacked it to bits and reduced my verbiage. The writing $2,000 check was nice but when you consider they had been willing to pay Namath $20,000 - well, there was always something out of balance here.

Alas I had more to worry about than mere money. With the clock running, I was in warp speed. We finally located a place to set up the production lines - the TV sound stage for out-of-business UHF pioneer KLPR (which as a country and western TV station had lasted only months in the 60s on channel 14). I was on the edge of agreeing to give up 50.0 (not 50.01 which they wanted) of the company (we were calling it CADCO - Community Antenna Development Company) to a local financing group when Murray Moss appeared in my life.

Murray deserves a book or at least a chapter of his own. He owned the rights to a child's game (Pong) which was at the time taking the USA by storm. He was ethnic, rich, and wilder than a March hare. Murray lived for two reasons. To make money and to chase women. Not in that order.

A brief illustrative story. By September Murray had me on the road visiting cities where the AASA had taken off. We arrived late one night in Minneapolis and Murray had neglected to make advance motel reservations. He never made reservations and once in Mexico City he proved why there is such a thing as the 'Ugly American' but that is another story for a later time. We walked into a 4A Motel near the

airport at 10PM.

"Three rooms and a young girl, not over 20, with big boobs" requested Murray. The girl behind the desk turned red.

"Forget the big boobs. I'll accept a hot ass because its late and I need some sleep."

The young lady turned redder and swallowed hard. "Do you have a reservation?" she asked, hoping we did not. We did not.

But Murray wasn't even out of low gear yet. Spying the small room boxes where keys and mail are stored behind the desk he leapt over the counter (to everyone's astonishment - for a man barely 5 foot 6 inches he had legs of springs) and simply helped himself to three sets of keys. He had the common sense to take three separate keys from boxes where there were two keys showing - indicating (he assumed) the room was vacant.

"Please sir," she pleaded, reaching for the keys. Murray took her wrist, yanked her to him forcibly and jabbed her rear end with a key. Amidst her screams and cries for help the rest of us headed for the door. Murray was still warming up.

"Tell you what I'm gonna do," he soothed at the poor, defenseless thing. From his pocket he produced a crisp $100 bill. "See this?" thrusting the bill down into her blouse. "There's nine more waiting for you in my room" and with that he jumped again over the counter and motioned for the rest of us to follow him to the third floor.

No, she never came to his room which didn't upset Murray very much. He carried a special 'phone book' and within 30 minutes there was a steady troop of not nearly as young things waiting at his door. For the rest of us, it was nighty-night time while Murray proceeded to destroy the room, the bathroom and one can but guess what else. In the morning I snuck out a side door and waited for Murray and his lawyer buddy Al to come down. Murray always travelled with an attorney and you can but guess why. In Mexico we needed Al's help - badly - but unfortunately he was not licensed to practice there. But I digress.

In retrospect, months after Moss burst into my dingy Oklahoma City office and announced "I am here to help you become a millionaire," I would have frequent occasions to ponder whether 50.0 (even 50.01%) with the locals from Oklahoma City might not have been a safer arrangement.

But again I am ahead of the sequence of events. As the middle of August loomed, parts began to trickle in. Elmenco-Arco had gone to Germany and found enough to get us past the first 1,000 AASA units.

They promised more. Murray had appeared just in time to get his hands into the parts 'hurry up' aspect of the new business. Immediately after we returned from the headline grabbing demonstration in Dallas, he had taken it upon himself to use his 'Pong' PR agency to flood the country with copies of the *Dallas Times Herald* news story, which others now picked up. Our phones rung off the hook - mostly from sports editors and TV sport reporters who wanted to either bury us or take a swipe at the local black out rule. One never knew their 'angle' until one was in too deep to get out gracefully. Murray handled the first couple of these ("You are too busy getting us into production") with Al always in tow. When lawyers began to call representing the various members of the NFL and AFL, Al took Murray aside and warned him to be more circumspect. Al started to tell me about the American Airlines stewardess on a flight to Buffalo when Murray walked in and I never heard whether it was $5,000 or more that got Murray off the hook - that time. Fortunately his pockets bulged over with $100 bills and one of Al's assignments was to carry a briefcase with thousands in $100 bills in it. I have never known anyone like Murray again in my life and thankfully I never expect to.

Murray arrived one morning in Oklahoma City with the most obvious hooker-lady in tow I had ever seen. The makeup, the plastic coated hair, and the size 8 clothing on a size 14 body spoke volumes about what she did - at least until the night before.

"She's going to be our floor production manager," he announced. I decided to play along - my life was the pits and I needed a morale boost.

I reached for an employment application form and tried to hand it to the woman (maybe 30 but even on a dark night she would look almost 50).

Murray. "No, she's hired. Got it? She starts today. Show her what to do."

I got it. Money speaks volumes.

There was a pleasant ending to this Murray-sode. The lady turned out to be perfect for the job and wonder of wonders she had done exactly this sort of thing for several years at Texas Instruments before she found another way to earn a living. Murray insisted on paying her himself 'outside of corporate records' and since she did the work magnificently and was not even on our books, who was I to complain? And she even dressed down to the point where everyone thought she was 50!

August 15th

"It's out." Milton Snitzer was on the telephone. I had seen layout gallies weeks before and after some minor changing and lots of teeth gnashing because he had rewritten virtually every word, I was ready for the 'kick-off'.

Out on the production floor an arrived-the-day before engineer-in-training named Steve Richey was finishing up parts distribution for the first run of AASA units. We had tried to gauge the markets where the unit would be initially 'hot' because part of what we had to know included which TV station out-of-market on what channel would be carrying the blacked out games. That in turn told us which TV channels to build amplifiers for. By now there were three models; channels 2,3 and 4; channels 5,6; and channels 7 through 13. Once built, the alignment tech filled orders on a per channel basis selecting the appropriate circuit board. If we had 25 orders from Minneapolis for channel 3 (KGLO Mason City), we knew we needed 25 boards for channels 2,3 and 4. In final alignment, 25 units would be mounted in cases and then aligned using test equipment for channel 3.

Richey was young but brilliant, even at his tender age. Years later as CADCO matured, it would be Steve Richey who created the world's very first 'home satellite receiver' for people to use outside of a cable TV environment. But that, also, is another story. He came from an Arizona Mormon family, his uncle was Chief Engineer for cable TV primary supplier Ameco and Steve had worked his summers at the Arizona Ameco plant for a number of years before we discovered him. Steve was one of those rare individuals to whom you present a concept and he goes away and brings you back a finished product in record

time with half the parts you expected at a third of the cost.

PE had been out two weeks and we were watching the kit orders fall off rapidly. The people who would build from a CADCO kit were early buyers - around 1,500 in all. Admission time. We did not have enough parts to build kits and *also* build wired and tested units for installers. The kit orders were put on back order - a terrible admission 30+ years on, but the truth. We sold the high band (channels 7-13) kit for a paltry $41 but the market price for a wired and tested unit was $109 rising rapidly to $199 because demand outstripped supply. You can guess which one got favored treatment with limited parts available.

Murray began charting where the wired and tested orders were coming from and found an excellent correlation between which team won on a Sunday and where the orders flowed from on Monday. He hadn't become the Pong multimillionaire because he was stupid. Uncontrollable? Yes. Stupid? No.

Then he arranged to place advertising in *that* city's newspaper on Tuesday. Every bar that had already installed or would have installed an AASA amplifier before the next blacked out game was played ended up being listed in the newspaper advertisement. Simple but very effective. Our phones rang and rang from clubs and pubs and halls that wanted their own installation *before* the next 'blacked out' game.

Out of the first orders we identified installer material - guys (and one gal in Cincinnati) who after telephone inquisition (done by Steve Richey and myself) were capable of making commercial installations. We favored Winegard brand single channel antennas for a number of reasons, not the least of which was my long friendship with John Winegard at his Burlington, Iowa factory. When we heard from bars after Murray's rush-rush Tuesday newspaper advertising, we promptly sent the query to the installer in the area. The installers thought this was pretty swell - they sat back and we sent them clients and they collected from $1,000 to $3,000 for the installations. It seemed everyone was growing rich.

Murray liked this more than anyone else. He was on the road constantly harassing airline personnel, motel and hotel employees, waitresses and best of all he got to act the part of 'the boss' and drop in on bars and clubs where the AASA had been installed. He was drunk and having more sex than at any time in his life and on the road (usually with Al) seven days a week.

As the football season wound to its inevitable climax Murray became despondent. He could see the 'fun' was about to end and he wanted to keep it going. He was also concerned that we missed a

number (maybe 100 or more) installation dates because of parts shortages and having cleaned out the Winegard inventory of single channel antennas. We had switched to other competitor (antenna) brands always with mixed results and our installer-partners were not very happy it was coming to an end as well. Murray was searching for something 'as big as Sunday football' to keep us going.

Personally, I was focusing on the professional cable TV line of equipment. We had mushroomed to over 30 employees working long shifts on the TV sound stage of KLPR and many of these people were burnt out from the long hours and the more than demanding pace of 'the dragon lady' (their behind-the-back name for Murray's hand picked production manager). Steve Richey and I were excited about building boxes that sold for $300 or $500 to cable firms, and I had created a prototype AASA that fit into a cast aluminum weather proof case for mounting at the cable firm's receiving antenna at the top of their tall antenna receiving tower. Murray saw no excitement in any of this. He had accompanied me to visit a small cable operator in western Kansas and vowed never to do such a thing again. The town of 2,500 people had one bar and the women there found him vulgar and 'short' - and told him so. A lady-for-hire could call him 'short' in Chicago but not in Ensign, Kansas. In Chicago Murray had a phone book filled with options. In Ensign, Kansas he had no replacement and no 'body' listed to begin with!

Mexico City

I did not understand the reasoning nor where he was coming from at the time. Thirty some years later, it is no clearer to me.

"Coop, we are going to Mexico City. Today. Your tickets are at the airport, be there at 5PM." He was at home in Los Angeles suburb Encino.

Murray had talked about Mexico but never explained why he wanted to go. It was around noon so I called my wife Susan with the news and she began packing. Susan was very flexible.

Murray had advised me that he and Al and their wives would meet us at a specific hotel around 10PM Mexico City time. All Susan and I had to do was get ourselves to that hotel. It was easier said than done because for openers he had the name of the hotel wrong and as luck would have it - there was another hotel by the name he gave us.

When we arrived in Mexico City and he was not there - at 10PM or 11 PM; Susan and I called it a day. Murray would find us and besides, as I had very carefully explained to Susan without much in the way of detail, Murray was ... well, 'cut from a different mold' from normal kids. And, I was anxious to meet his wife, amazed that he was bringing her and more amazed that she should even exist.

The next morning. No Murray. No Al. No wives. 10AM and Susan and I decided we needed breakfast. There were dozens of cafes spread around the large square and we randomly selected one and went in for breakfast. My heart jumped when I heard Murray's voice screaming in pidgin Spanish. There he was, in the randomly selected restaurant at the bar at 10AM in the morning apparently drunk out of his mind. And making a play for the Senorita behind the bar. Al stood by with

his finger on $100 bills.

I suggested to Susan we avoid going to the bar and find a table. At a nearby table were two very-California women, dressed in original sun dresses and shoes that probably set their husbands back several thousand dollars per outfit. Yup. Al's wife, Murray's wife. Mrs. Moss recognised me from pictures and introduced herself. Then she called out to Murray who was watching as Al counted out $100 greenbacks to the bar lady.

Murray turned, saw me and ran to the table leaving Al still counting out bills. "Hey - how are you doing? You must be Susan. You've met (his wife's name) and (Al's wife's name - no point in embarrassing either of them this late in the game). Al's getting us arranged with a guide - he'll be along."

And so our great Mexican adventure began. But what was it all about? Mexico for the 'All *American* Sports Amplifier'? I doubted that.

After a breakfast that saw us leave three times as much food on the tables as we could possibly consume - probably more than an entire 11 man NFL team could have eaten - we were off. A tiny Mexican man and his dog appeared, accepted some $100 bills from the bar lady, and became our mentor. For the next two hours he lived as close to Murray as another man could - even closer than Al. As we exited the restaurant a Cadillac limo was parked at the door. The Mexican man opened the doors and we crawled in. The driver and he exchanged Spanish words and off we went. Fifteen minutes later we pulled into a parking lot of a very large facility. Chain link fences perhaps 12 feet high surrounded the buildings, armed guards were at 25 to 50 foot intervals, the 'guide' motioned us to follow him. We marched directly into the overstated marbled lobby decorated with twenty foot high waterfalls and even I could figure out we were in the office complex of a major (I won't identify which) distributor for American built motor cars. Murray had ignored all of my attempts at questions with his stock answer to everything, "I am going to make you a millionaire, my boy." Fat chance.

More words between our guide and a man who sported two guns; not speaking Spanish was proving to be a definite handicap. We were herded into an elevator and sent on our way. Two floors up the door opened and the most surrealistic Spanish lady I had ever seen in my life greeted us in no-accent English. The clothing she wore was so stylish and overpowering that all three ladies began to nervously giggle. Even Murray was awe struck muttering to Al, "I'm in love - give me a couple grand." We followed the donna down a walnut lined hallway

made more errie by a rapidly developing misty rain, abruptly turned right and were presented with two doors easily 15 feet in height, closed, before us. Each door had to cost more than Murray had in his well lined pockets.

Behind the door, a man who sat behind a desk so elegant and so clean of nick-nacks that you and I could have hopped on top and wrestled without fear of reaching an edge and falling off. The desk was raised on a platform so that the ageing Spanish don behind it looked down on those who entered. You instantly knew that he was in charge. Maybe in charge of all of Mexico for all that we knew. He greeted us in perfect English and Murray began to babble. He talked so fast that he lost me and even Al was showing dismay on his face. The don raised a hand to silence Murray's babbles and motioned for us to sit down.

"Welcome to my humble office, please tell me how I can be of service" he said in equally flaw-proof English. If his English had any accent of all, it was just a trace of New England. Perhaps he was a graduate of Harvard, doubtless the School of Business. Murray started over, this time slightly more in control. He explained about the All American Sports Amplifier, tossed in the name Winegard a few times, and the man again raised his hand. "There will be time to talk of this later. I have instructed my drivers to prepare 2, no 3 vehicles to take us to our mountain home. Shall we leave?" And he rose as we all waited for him to circle the massive desk to lead the way back through the walnut corridors, the elevator and to the street. The girls, now joined by Susan, giggled nervously.

"I have taken the liberty of instructing my man to pick up your personal effects from your hotel rooms. They will be waiting in the cars. Shall we go?" opening his hand towards the waiting vehicles. Nobody even wondered how he knew where we were staying or how he could gain entrance to our rooms and already have our luggage. We would ponder about that later.

So here we were leaving the office of a man whom we did not know (if Murray knew his name, he was not sharing it), climbing into two vehicles and driving off to a 'mountain home'. Behind the three vehicles were two additional cars, filled with men you would only hope to meet in broad daylight on a well populated major street. They would turn out to be his personal body guards and as we later discovered, armed to the teeth.

We were instructed to divide into two cars - the ladies (with the donna) into one, the men into the other. Our host would drive the first car, his wife the second. The tiny Mexican man whom we had

added at the restaurant was dismissed and Murray tossed a couple of hundred US dollars his way. The third car had baggage - enough to equip a small army and buried in the back seat Susan spotted our modest two-suiter. One of the body guard vehicles pulled out to lead, don followed and donna followed him, the baggage vehicle and then the second body guard car at the rear.

About the vehicles. Don was driving a custom vehicle which we later learned had started out as a 1969 Corvette 427HP but in one of the don's body shops was modified to seat four with modest comfort. The donna's vehicle began as a 1957 Corvette 357 and as the ladies would later tell us, the passenger seats were barely big enough to sit in. But they were bucket seats and as it would turn out, falling out of a bucket seat was far more difficult than a straight seat. The donna, as we left the parking lot, immediately challenged the don on the street outside and passing the lead body guard car we raced at increasing speed down a narrow side street towards a motorway. Nobody lost their breakfast but all would later recount it was only because each was too frightened to breathe. We hit the motorway with furious down shifting at more than 100 miles per hour, or so I recall from sitting directly behind driver-don and staring at the instrument panel. As a lifelong lover of Corvettes, I instantly recognised the panel and the way the engine was stressed, then backing off and how the manual shift was being operated with great skill. The man could have easily terrorized Indianapolis.

We did not see the two body guard cars nor the baggage vehicle (a simplistic but elegant station wagon) for over an hour. Then suddenly they appeared from a side road to once again join the parade. We had been averaging between 100 and 130 miles per hour for that hour, the two drivers trading lead position at whim and the rest of us deeply wrapped in our own survival thoughts and anxious to see when our hands would return to a normal skin color. Pure white was not normal. Obviously we had not taken the shortest route as the other three vehicles could not have been waiting for us as they did. Almost nothing had been said by the Don and the ladies later told us 'Donna' refused to talk being so intent upon her driving. The donna was especially skilled at passing on the outside lane when the road curved, giving don the inside lane. He would allow her to do so, never challenging as nobody had any idea whether the outside lane had traffic on it beyond the curve. We had so many close calls with donkeys, horse drawn carts and lumbering 1938 DeSotos that we eventually simply shut our eyes and tried to lose our fear in private, distant thoughts.

Almost two hours to the minute we left the paved road, banked

sharply to the left and at much reduced speed crawled up a hill that would turn out to be a mountain. The road took us above the mist and soon under tall pine trees we were in bright sunlight; actually above the cloud line. Still we climbed and then atop a ridge we saw destination; a lake of perhaps 100 acres, surrounded by mountain pines and a complex of buildings.

The Don led the way to what would later be characterized as 'The Big House', hopped out and clasping his hands together cracked knuckles. Donna was right behind and she did the same, and then flew into his arms and gave the don a healthy kiss on the lips. Before any of us tourists could even move to crawl out of the respective vehicles two men appeared from the shadows, one crawled into each vehicle, and closed the doors. The ladies were very frightened by this, Murray tried to make conversation with our driver and was ignored. Both cars started up again and our driver said, "I am instructed to take you to the cabins." Since no words had been exchanged with the don, we shortly worked out that there was a 'routine', perhaps often repeated, happening here. 'The cabins' would be our home for the night.

There are cabins and then there are 'cabins'. This was the latter. Although the exterior was pine logs ala Daniel Boone, the inside was around three steps up from a 5-Star hotel. Even Murray was impressed. The drivers dropped us off and in due course the station wagon appeared with our personal bags followed by the two body guard vehicles. Murray tried to give $100 to the chap driving the station wagon as a tip for bringing the luggage and the man merely smiled at him, not accepting the money. It was a rare day when Murray Moss stood with a $100 bill in his outstretched hand and nobody reached to take it.

Our evening

A man appeared. He was European with an accent, but his English was suitable for the BBC or the Today Show.

"Dinner will be served at 6." It was around 3PM and we were hungry. "If you wish to snack, the kitchen is fully equipped". We were in the mountains at undetermined elevation (later to be worked out as over 7,000 feet) and chilled. "There are warm jackets and snug boots in the bedrooms - please dress as suits you". And with that he abruptly turned and retreated to 'The Big house'.

"OK Moss - what in the hell have you got us in to this time?" I demanded. Being cold and hungry makes me a mean person. Murray shrugged and said nothing. "Murray, I'm cold," purred his wife. "Can you do something about that?" Knowing the man's preoccupation with sexual encounters, I thought I detected a coded message. I was wrong.

"Al, there are fireplaces in almost every room. Let's build a fire." Murray Moss, boy scout.

Six of us toured one of the cabins to work out starting a fireplace. There was a beautiful hearth certainly, but not a sick of fire wood.. Not even kindling. Murray had an answer for paper to start the kindling, pulling out a roll of $100 bills. Nobody laughed.

"Al, we are in a woods. This whole damn placed burns. Follow me," and out the door they headed. I might have followed them but my anger level was rising because not only was I uncomfortable but I could tell Susan was very uncomfortable. Just a few hours with Murray had convinced her the man was crazy or dangerous or both. What he did next convinced me as well.

"All the Goddamn wood is wet," he explained coming back with a tiny handful of twigs. Al was right behind him. "These (holding some ancient, dead pine cones) might burn - but not for long." Al's wife was returning from the bedrooms over laden with designer jackets of every imaginable size and color. "Here, these will help," she announced. Murray was now challenged and $100 bills would not solve this particular dilemma. He had promised a fire and, " God-dam it - we'll have a fire!" He disappeared into a side room, the dining room as it turned out. Suddenly we heard a loud 'crack' and more loud noises that I could not work out. Murray appeared carrying wood. The source of the wood seconds before had been a set of what started out to be 8 antique oaken chairs around a dining table. One by one Murray was breaking them into pieces to build a fire.

What was said next is not repeatable. Even Al was calling his meal ticket 'stupid' and 'out of control'. Madam Moss was the only one who said nothing in reproach - after twenty years of marriage to the man, she had long ago given up trying to control his 'fits', as she termed the episode later.

So now 'we' (that is a collective, tourist, visiting group 'we' only), as guests of a man who's name I still did not know, perhaps 100 miles or more from Mexico City in a mountain enclave guarded by men on horseback carrying shotguns, were ripping the place up and setting what was probably priceless furniture ablaze in the fireplace. I had witnessed some bizarre things in my life, and even done a few myself. But this one was beyond even a healthy writer's imagination.

To set the broken chair pieces on fire, Murray brought out a hundred dollar bill. Al suggested the bill would be cinders before the wood caught and reaching into a walnut book case grabbed the first book his hands fell upon and tossed it to his partner. At this point, Al told me later, "you might as well be hung for being a thief as a pick pocket." Yeah - and that hundred dollar bill once burned would never travel to Al's pocket. I even encouraged Murray to tear the book apart which as I later explained to Susan was for our own protection. "If - that is IF we get out of this alive or without spending time in a Mexican jail, it will because Murray and Al have enough of those damn bills in their pockets to buy our way out. We will need everyone of those!" Which of course gave Susan new reason for hope. But not much. The book that Murray tore apart for the fire launch had an unburned cover: 'War and Peace'.

Ultimately Murray with Al's help burned all 8 chairs and then proceeded to bust the huge table into chunks to feed the avarice flames.

We found a well stocked liquor closet and each claimed a cozy chair, sitting there pensively and silently watching the fire burn until nearly 6 o'clock.

A loud knock on the door brought us all back to the real world. Al answered and the accented gentlemen announced we were expected in 'The Big House'. We promised to be up shortly and he disappeared after surveying the scene. I suspect he worked out what we (again, a collective 'we') had done and I further imagined to myself that Don and Donna would be well briefed before we arrived. Somehow in the excitement of Moss attacking the furniture everyone had lost their appetite and although we would later discover enough food in the 'cabin' kitchen to feed us all for a month, it went untouched that day.

'The Big House' (El Casa Grande) was in fact a palatial mansion, far more inside than out. Every modern convenience including many we did not recognize was inside. Murray spied a 'Pong' game within minutes and instantly claimed to be the father and the 'wealthy American' who owned it. The Don looked at him coolly but made no comment about Murray's statement. It was going to be a long evening, thought I.

In actual fact it was not. We somehow stumbled through a six course dinner, served by a squadron of help that numbered so many Susan decided they were leaving the room and changing their clothes to fool us into thinking there were four or five times as many as there actually were. She had given up counting at someplace around 30 different people serving us. The menu was a mixture of European and Mexican Spanish. I had never had such delightful Mexican food in my life but Murray in his usual fashion tried to claim equally good 'Mexican food' at a restaurant in El Paso. As El Paso bordered on being the hell hole of the US - Mexican boundary, he probably could not have selected a worst thing to say. But that was Murray and our nameless host and hostess chose to ignore his ranting.

Over after dinner liqueur the Don posed the question we had been anticipating.

"Now," said he pausing to light a cigar that might have been hand wrapped by Fidel Castro himself, "how may I serve you?" It was like God coming down to earth and asking, "Tell me why I should take you back with me."

Murray began and, for the first time since I had known the pair, Al broke in and took over. Murray seemed willing to accede at this point as Al explained the All American Sports Amplifier and the sales results during the American professional football season. The don listened

intently and the donna sat at the opposite end of the 20 foot dining table looking very bored. Perhaps she was daydreaming about racing her much modified Corvette. I pondered Murray had his eye on the dining table for firewood.

"And you," looking at me, "are the inventor of this ... this machine?" he asked of me. I admitted I was but elaborated no more.

Returning to Al, he spoke again. "Why have you come to me? What might I have to offer to you and this wondrous equipment? You know we do not play American futbol in Mexico and frankly, I do not follow the sport."

Al was now in trouble. Murray had arranged the Mexico trip and up to the moment when the don asked us why we were sitting in his dining room drinking his liqueur, Al believed Murray had also 'arranged' the meeting. Al would later tell me - "The light had just gone on. At first I figured 'the don' was simply being his normal sophisticate self - and we crass Americans were expected to wait until the formalities of getting acquainted were over before we talked business. But now, I had this horrible revelation. This man had absolutely no idea who we really were or why we were here. Moss had messed up big time and we were with the wrong person!" If, indeed, there had ever been a 'right person'.

This might be an appropriate point to take a reader survey. All right - hold up your hand if you think the don was playing games and perhaps was not ready to talk business. Put your hands down. Now, hold up your hand if you think the don knew all about this but after meeting us decided the easiest way out was to feint no knowledge of who we were or what we wanted (those so voting are indicating that after meeting Murray, nothing on earth would encourage the don to do business with us). Finally, hold up your hand if you believe Al was right - the man really did not know who we were or why we were there and his hospitality was simply a reflection of his position in life. Put your hands down now.

The next morning I caught the donna alone and we walked to the corral and their prize horses, talking. I told her everything she did not know, and she smiled from ear to ear.

"We *were* expecting guests, from Detroit. Three couples. Last night we had a telephone call and they were in Mexico City wondering why we left without them!" We both laughed and she took my hand and said quietly, "Look, one cannot always pick their business partners and just because you have a crazy man involved with you does not mean you will ultimately fail in business. But allow me to make a suggestion. Get rid of that man as soon as you can. Anyone who

destroys 18th century priceless antiques in the fireplace is dangerous!" She gripped my hand warmly, smiled again, and turned to her waiting Palomino and the horse handler who was standing by patiently.

I did not share her conversation with anyone until I was safely back home in Oklahoma City. Then I told Susan who reacted by giggling. Loudly and uncontrollably for perhaps five minutes until tears flowed down her cheeks. I had previously related a very small set of, 'you won't believe what Murray did during our trip,' stories to her so she was not totally unprepared for the donna's advice.

We were returned to Mexico City by escorts, driven to the airport and by some pre-arrangement Susan and I immediately ushered into the first class lounge for our return flight. It turned out we had only minutes to spare after arriving at the airport and I missed the opportunity to even pick up a souvenir for our young son Kevin. That Susan and I had come down coach class seemed to make no difference - we were shown in ahead of the rest of the passengers to seats 1 and 2 in first class. Murray, his wife, Al and his wife on the other hand would later relate their first class seats had mysteriously disappeared and they were 'forced' to return to Los Angeles coach class.

Years later when CADCO was a sizeable business selling cable TV equipment, I related portions of this story to a cable customer from Baja California, Mexico. He smiled at the end of the story and then revealed to me the name of our mysterious benefactor in Mexico City. I had not known it to that time and out of respect to the memory of his 18th century dining room furniture, will not reveal it now.

Of course not all of CADCO's early sales were into the 'grey market'. A version of the AASA was created for the FM radio band (88-108 megacycles); the IPA-FM. I made this one 'field tuneable' so an installer could 'peak' the performance for a specific FM radio channel. We happened into this market quite by accident. As a 'closet fan' of long distance TV and FM radio reception (a 'DXer'. as such folks are known), I had built up an FM unit because I wanted to be able to receive (and listen to) faraway FM stations operating on frequencies which were immediately adjacent on the dial to local stations. The same situation as with TV only this was (FM) radio.

Even I was astounded how well it worked and one of the fellows who dropped in to see how we did what we did was Chief Engineer for a powerful St Louis FM station. He had an unusual problem. Because their 100,000 watt station covered such a vast area, and because they 'leased out' something called a sub-carrier to a commercial firm for background music, his station was getting into distant towns (up to 150

miles away) with sufficient strength to be heard but not able to use their sub-carrier because of local FM signals. "Could an AASA for FM solve this problem?" I gave him my FM prototype to take back to St Louis and try.

A week later he was back. "How fast can you build 50 of these?" I told him and we agreed on a price. A month later, "I need more - 500 more. This has opened up towns and cities all around us for our sub carrier operator!" I have to wonder 30 years down the road how many drug stores and doctor's offices in the Midwest still have an IPA-FM sitting there making a distant sub-carrier service work?

The maturing of CADCO

Murray Moss hung around past the football season just long enough to decide he wanted out. The feeling was mutual. But we were going to miss his financial backing and CADCO (as the Community Antenna Development Company) was short of having enough products to make an abrupt transition from 'consumer' to professional. Steve Richey had left the production area to join me as a product designer and between us we were working feverishly on more than a dozen specific-for-cable products. But they were three to six months away, if we were lucky, and for now we had a specialized market (football amplifiers) and no football. I down sized to 5 people and created brochures to promote the sale of the professional versions of the AASA which we had originally prototyped for the Napa cable system. The 'happy hooker' hired by Murray was the last AASA employee to leave; both Richey and I would wish she could have stayed when cable TV production got into high gear but alas, funds were short and CADCO was trying to stay alive long enough for a rebirth.

It was now early 1972. Cable TV was in an explosive growth phase, dozens of new communities were being introduced to multiple-channel television each month. The 'word' around the industry was, "if you want to build a new cable system, get in line. And be prepared to pay top-dollar for the cable, and all of the electronics because everything cable needs is back ordered 6 months to two years."

Richey and I had decided that within a year CADCO should be able to supply a total cable TV system, built under contract for a customer (called 'turn key'). All someone would have to do was march into our office (or we would go to them) with a map of their town. We

would layout the cable system on paper (to determine how much equipment was required), quote them a price and if they accepted, they could go home and we would show up with a crew of people to build their system. When it was finished, they would have the 'keys to the system' turned over to them and their cable system business would be ready to operate. It was of course far easier to explain the process than to actually be able to do it.

This was pretty ambitious for a small company that had just down sized from 30+ to 5 employees, was losing its lease on KLPR's sound stage and had a modest nest egg in the bank which was shrinking each month. A four page brochure promoting the 'The Interdigital Series' of professional version amplifiers based upon the AASA was mailed to more than 800 cable systems across North America, generating a nice positive hump in our cash flow with new sales. Our tower mounted amplifiers for the weak TV signals cable companies routinely desired were significantly better in performance than the competition built by firms such as Jerrold and Blonder-Tongue. And with a writing and publishing background, I awoke one morning and decided CADCO would create and publish (free of charge) a monthly 'Tech Talk' miniature magazine for the cable folks. During a typical week, Steve Richey and I fielded several dozen telephone calls from existing and would-be cable operators seeking technical advice. We 'logged' their questions which I translated to Tech Talk as a technical or engineering guide to the industry. Of course mixed into the answers were unabashed 'plugs' for CADCO equipment. Sixty days after starting Tech Talk we were back to 10 employees and business was humming.

Twenty years later, wife Gay and I would be house guests of Ike and Lois Blonder at their home in New Jersey. Ike had been a friend and more from 1960 when I was publishing 'TV Horizons' magazine. In 1965, in Angels Camp, California as a budding cable operator, I had been his first significant customer for 'a complete cable TV system' as B-T entered the market with amplifiers, customer taps and everything one needed to build a cable business. In 1994, Ike and I were in his basement digging through one of the largest collections of 1946-1960 period TV 'trivia' outside of a museum. Ike kept opening boxes, humming to himself and throwing items in my direction where I was also head down in nostalgia.

"Hey, take a look at this," he commanded. A file folder filled with letters. "Skip the crap on top."

There a memo, written by Ike to his partner Ben Tongue in mid-1972. In it Ike was suggesting to Ben, "This CADCO company is doing

some very exciting stuff. I suggest we buy them before they become serious competition."

"You never came to me to discuss this," I responded after reading the memo. "What happened?"

Ike: "You remember Benco (a Canadian firm B-T had acquired in the 60s)? Well, that turned out very badly for us and after discussion Ben was against going outside our own plant for growth. Besides, he was sure he was a better design engineer than anything CADCO had - including you - and given enough time, we'd do as well or better with our own products."

The following evening while having dinner with Ike and Ben, I asked the Tongue-half if he remembered that memo. He smiled but said nothing.

"I agree with your conclusion of 1972. You were then and you certainly are now a better design engineer than I. But you should have grabbed Steve Richey!"

Richey was turning his small laboratory into a miniature cable system. One went into his lab only with his permission - me included, initially - and then he had to be certain you were not a 'spy from the enemy'. Any firm outside of CADCO was 'the enemy'.

CADCO, to sell complete cable systems, needed to have between 6 and 8 major totally CADCO designed products. Some were for the headend (the place where cable systems take the signals from their tall antennas and process them to high quality) and the remainder were 'in the plant' - the network of coaxial cable, amplifiers and 'passive equipment' installed adjacent to streets and alleyways to transport the headend signals into living and bed rooms.

Steve had recently ordered-in a half dozen 2,000 foot reels of small coaxial cable which he said were needed to test his amplifier equipment. Using rope the reels were suspended from the ceiling because the floor and work benches were six layers deep in test equipment, prototype circuit boards, and perhaps two million Marlboro cigarette butts. Steve gave new meaning to 'smoking like a chimney'. And empty coke cans. He lived for days - or longer - on cans of coke and cigarettes. He would eat only if someone brought him food from McDonalds or Burger King and as often as not curled up on a dirty, dingy, couch to catch a nap rather than going back to his apartment. He was a man possessed. Which was exactly what CADCO most needed at that point in time.

"Come into the lab. I have something to show you," he announced one day.

Buried in a corner on a floor a small GE color TV set. "Change the

channels" he directed. I did. In this era a 'modern' TV set had 12 (VHF) channels. On every channel I found a program. Which was a pretty good trick in Oklahoma City where only 4 TV stations operated.

"Look over here," and he pointed at a rack filled with prototype equipment. "These are our new heterodyne processors. I can select any input channel I wish and then select any output channel. This will give the cable operator freedom to change signal source by just pushing this button". Indeed it did. Up to this point, a cable operator wishing to add a new channel had to wait months while a factory at some distant point built him a new set of channel processing equipment to his order. No more. Just push the button on Richey's device.

"One processor for each channel, reaching out and grabbing any VHF or UHF channel in the air". I was already savoring the money that would roll in and in the midst of saying some very nice things about him, I was stopped in mid track.

"There is more" said he smiling and pointing at the ceiling where the rolls of cable were dangerously suspended by ropes above our heads.

"The TV set is receiving those 12 channels through the equivalent of 9 miles of half-inch coaxial cable and over here (pointing) and here and here and here ... these are your new CADCO trunk line amplifiers!"

What I saw were hopelessly solder-globbed pieces of G10 circuit board each one covered in several dozen parts arranged in a less than perfect format.

"We," said he showing a rare sign of camaraderie by placing his arm around my shoulder, "are now officially in the cable TV system business!"

This 21 year old reject from a Mormon family who had somehow escaped from his mandatory two years of church dictated missionary service, with virtually no formal electronics training, had started from scratch and created in under 6 months time eight different cable TV implements, the combination of which would indeed make it possible for CADCO to enter the market with 'complete cable TV systems' for smaller communities. It was not quite in the same league as Christ coming off the Cross ... but for 1972 Oklahoma it was close enough. Eugene Kretchner. A wheat farmer from the tiny town (under 1,200 people) of Medford, Oklahoma, 77 miles north of Oklahoma City near the Kansas border. Larger towns nearby (Enid, Ponca City, Blackwell) already had cable. Medford had to wait until one of the larger towns would run out of new suburbs to capture for cable and

might think about expanding their way.

Gene was dropping in each month when he came to 'the city' (as in Oklahoma City) because he wanted better television reception. He had purchased some of our Interdigital Preamplifiers and had gone about as far as a consumer might go in optimizing his TV pictures. The next step would be cable TV.

Richey promised me 'production units' of his designs in 60 days, provided I found the money and a staff to build the equipment. A delicate money balancing act began. CADCO was profitable but hardly able to raise the $100,000 required for the next leap. I had been to our bank and they patted me on the head, called me a 'good lad' and sent me on my way.

So I sat down with Gene Kretchner and we laid out a cable TV system on a piece of butcher paper for his town. The system would suspend cable on poles owned by the local power company, and pass by 340 homes. Gene had gone through two good years with wheat production and was expecting a third. The cable plant would total just over 9 miles of system which strangely enough was almost exactly what Richey had running in his lab.

I priced the system including a 300 foot tower to hold the (CADCO brand) antennas and amplifiers. Of course CADCO did not manufacture antennas at that point - we didn't even know how. But we had maybe 60 days to learn. The system came to around $100,000 and I taught Gene how cable cash flow worked. If he was able to sign up 150 homes of the 340 passed by cable within 2 years, he would be profitable enough to repay a five-year bank loan. Mortgaging his wheat farm, he borrowed $100,000 and began writing us checks.

Now we needed a staff and a better place to accomplish the chore. Within 30 days CADCO had tripled to 30 employees, and we arranged to take over the back half of the building we were already leasing. Moreover, people just like Eugene Kretchner began to come out of the woodwork. Raymond Stice was one of these. Ray wanted to build cable in three small communities in south-central Texas; Calvert, Franklin and Bremond. His total order would exceed $300,000 and there were by the end of 1972 more than a dozen just like Ray anxious- to-be cable operators.

CADCO was in the right place at the right time with the right products: An exploding interest in cable TV as a business venture, coupled with the extremely low cost Richey approach to equipment design married into turnkey, fully operating systems for our customers by a small cadre of very enthusiastic people.

People. Within a week of Richey's lab demonstration I had rounded up quite a crew. Kretchner and Stice and others wanted us to design the system, provide all of the parts, build the system and teach them how to run it; 'turnkey'. Some, like Stice also wanted us to finance it for them. The competition, hopelessly back logged building big towns and cities such as Tulsa, Oklahoma, didn't even have the time to answer calls from our customer base. Gene and Ray and others were simply 'too small to bother with'.

I went back to our 'city' bank and tried to interest them in loaning money to our customers. I got as far as a senior loan committee to make my presentation, stacking up signed contracts for systems next to cast aluminum cases holding our equipment. They were impressed but reluctant to loan between $100,000 and $300,000 to folks living hundreds of miles from the city who had no real collateral other than their proposed cable TV pro forma cash flow calculations.

What we obviously needed was a sizeable line of credit which could be tapped, following suitable banking rules, to 'finance' customer cable systems. A twenty year veteran of the cable business, an early CADCO customer, named Joe Davis from Fort Smith, Arkansas had a suggestion.

"I've been in this business long enough that my bank now understands how it works. I can get all of the money I need to build new systems but only if my name is on the line. You bring these novices to me and after I am satisfied they have what it will take to be successful in cable, I will take a modest ownership interest in their system in exchange for placing my name on the line. Of course if they turn out to not be capable after the system is built, they must have in place an agreement that I own all of the system; no arguments."

Joe was good to his word and became one of my closest friends. With his financial assistance, amounting to his bank providing the money as long as Joe was the ultimate responsible individual, we found ourselves facing more than a million dollars in cable contracts by the end of 1972. Every one of the Joe-funded systems ultimately worked and he ended up with 25% of each for his service - he never was called on to take over a system.

To complete the technical staff I went back to my ham radio roots. A young ham named Stan Wigh from Kingsburg, California had special skills in tower and antenna construction. I hoped he would be just as good supervising the construction of cable systems and he agreed to stop his college education to come east and help. Back in the AASA days, a Minneapolis aerial installer named David Pangrac had demonstrated

he knew how to climb towers, run wires and adjust amplifiers. I found him anxious to move his family south to become with Stan Wigh, a construction supervisor. Of course neither of them had ever done something like this previously but I had complete confidence in their ability to hit the ground running as if they had been doing this all of their lives when they arrived. I was not disappointed.

The 'CADCO Antennas' would be solved locally. Another local ham radio friend, Tony Bickel, was basically a non-employable person. He had held dozens of jobs, each for a short period of time, none memorable. But Tony had - and I knew this instinctively - some very special skills when it came to designing complex antenna arrays. If he had a shop with some guys who would cut aluminum tubing to his instructions, and was left totally alone, it was my belief that out of that shop would come the antennas we needed. Making antennas on our own was another of those 'forced-into-it' situations. The antennas we wanted were made under patent protection by Scientific Atlanta, a name brand in the cable TV world. And like everything dealing with cable at that time, back ordered by six months or more. Moreover, S-A was just about the least friendly company in the industry to deal with (as I would learn and relearn over the next few decades). And expensive. They wanted $3,000 for antennas which Tony Bickel would build for us at a total cost of under $200. Which meant we could sell ours for half the S-A price, not violate their patents, and look like heroes to the cable industry. And still make a comfortable profit on each antenna.

All of this was happening with lightning speed and I realized this was like the day the reality of the AASA hit me and I became conscious that I was no longer in my garage building parts. Another ham friend to the rescue. Bill Smith (his real name) had started out working as a news reporter for a South Dakota TV station. Then he moved to Florida and along the way became VHF Editor for QST, the national ham radio magazine. Bill's life had taken a sharp turn when he separated from his wife in Florida. I asked him to quit his TV station position and catch the first plane to Oklahoma. Bill would become my 'shadow' with authority to enforce or supervise or oversee every aspect of the phenomenal growth then underway. Bill could be a hard nosed son-of-a-bitch when he had to be and when I introduced him to the staff, I told them this. Supervision was not then (nor anytime since) one of my strong points. There was one pointed exception; Steve Richey was off limits to Smith. Only I dealt with Steve who demonstrated his special status by not turning up for the otherwise all inclusive staff meeting to intro-

duce Bill and his assignment. I remember counting the number of people gathered in our expanded production hall at that meeting; 55. "My God," thought I as Bill spoke, "where in the hell did all of these people come from?"

One came from New Zealand. His name was Mike Foley and I was introduced to Mike when Steve Richey. in a careless moment, discovered he had been booted from his apartment for not paying his rent and was faced with finding something to do with several card board boxes containing his limited personal possessions he found waiting for him outside of the pad locked door that had been his home. Steve had not been 'home' in probably a week, sleeping as was his habit on the dingy couch in the lab while piling up McDonalds and Burger King wrappers and cases of empty red Coke cans wherever they would fit. He had simply forgotten to pay his rent, probably could not find his check book anyhow, as he mostly lived by taking $20 bills from the company's petty cash box in accounting when he found time to be hungry or thirsty. Accounting once notified Bill Smith, "Steve Richey has not cashed his pay checks for more than 3 months." I spoke to Steve about this and he shrugged his shoulders. Some things were simply not that important. In fact, he could not locate most of the checks and we ended up cancelling all of the rest and I personally went down and opened a new account for him and arranging a credit card so he could stop making a shambles of our petty cash accounting.

Forced to find a spot to store his seldom-used personal effects, he ended up sharing an apartment with this Kiwi bloke. Steve and I had been working our way through a list of options for housing the soon-to-be-in-Medford cable amplifiers. A cable amplifier is larger than a bread box (but not much) and subjected to the most strenuous of environments. First, the housing for the Richey-created-circuits had to be weather proof. Not weather tight - weather proof. No moisture allowed inside, in fact, the housing could not even 'breathe'; it had to be air tight. It also had to answer to a list of engineering demands concerning housing effects on the circuits within, and it would be installed at a utility/power pole suspended by clamps from a support 'messenger wire'. Rain, wind, vandals, tree limbs, climbing spikes from power company personnel going up and down the poles would all challenge its integrity. When the weather was very cold, the electronics inside must be only 'warm' and in Medford's wheat growing summer, when the outside temperature popped above 100F, the inside still had to be just 'warm'. This was a major challenge that other much larger firms had failed to solve.

The amplifier boards were being built on the production floor, Stan Wigh was stringing cable in Medford and we still did not yet have a case to house the amplifiers. Steve had made some educated guesses about how the case would ultimately be designed and the boards were being prepared to fit into this non-existent housing.

"I have an answer to the amplifier housings," announced Richey. Behind him on the floor, barefoot, sitting Indian style and only modestly presentable, was someone wearing glasses.

"Bob, this is Mike - Mike Foley." The figure rose from the floor with the smooth motion of a gymnast and put out a hand. I shook it and responded, "Are you Steve's solution?" My friend Joe Davis stood behind me surveying the scene. At this juncture, Joe was only allowed into Richey's lab if I was with him although by this time Joe could go anyplace in the plant - except Richey's den - unattended. He didn't even knock on my closed door when he wanted to see me. Which was just fine with me. Even Bill Smith would 'intercom ahead' before he came in and Richey never came to my office - I always went to his lab to speak with him.

Mike Foley smiled and did not answer. Steve immediately began describing a housing, using the sleeve of a ten day old shirt on his body to clean a small space on his always busy black board. He drew me a sketch and it looked like an aluminum cast housing which Jerrold, S-A and others used.

"This is the clever part," he continued. "The housing has two identical clam shell halves. Everyone else has a top and a bottom, each requiring a separate mold and doubling the production and inventory problems. Mike says he can do this in the rear of the building, you know - back there where Bickel is building antennas."

I thought the identical halves brilliant but could not fathom how one got from aluminum raw stock to a molded housing for anything short of - maybe $100,000?

"Sand. Sand casting is the answer. Mike will build a giant sand box in the back, create holes in the sand the exact size and shape of the half housings, melt down aluminum bar stock and pour the liquid aluminum into the sand castings".

Joe Davis poked me in the back with his finger, and relit his always present pipe. I understood his telegraphy.

"Let me get this straight - we are going to become a foundry, melt down aluminum stock, make forms in sand and then fill them up with aluminum we pour out of crucibles?"

"Mike can do this. And he can take the castings and machine them

after they cool to the exact requirements of our circuit boards. For the (coax) fittings, he will drill out the casting, tap and die the holes and the connectors will simply screw right in. Instant amplifier housing."

There was a tremendous amount of faith being asked here. Joe Davis would later follow me back to my office to give me his senior counsel. "Richey is brilliant but this is the crazy. Did you notice Mike never said a word?" I noticed.

I had left them in Steve's lab after asking for a list of major equipment we would need to do this. And I had cautioned that the costs assigned to each item had to be +/- 10% spot on. Moreover, if any of what they needed was going to take longer than a week to get into our building, it was too long. Stan Wigh was daily bugging me about amplifiers as he had a third of Medford under cable and the company we had bought the (installed in place) tower from was due in the next day to go 300 feet and hang Bickel's first production antennas.

Within an hour a paper bag appeared pinned on the outside of Richey's closed door. Written half in pencil and half in crayon was a list of equipment, a price after each in crayon, and a telephone number we could call to order the equipment. Bill Smith brought me the paper bag as Joe Davis and I sat in my office pondering what to do next.

I now explained what this was all about to Bill and asked him to "go and take Tony Bickel's pulse." Tony was on the best of days a primma-donna and while he was already turning out antennas which were being ordered faster than he could get raw aluminum stock in to build, Richey was right. A metal foundry only made sense if it went back in the corner of the building with Bickel. They had their own alley way entrance, big trucks could (and did) drive right up to the double hung sliding doors, and if we were going to melt aluminum and forge housings, it had to be there. Or off premises. I suggested to Bill he start by asking Tony if he thought forged aluminum mounting brackets might not cost less, be stronger, and require less milling time (on the drill presses) than the present brackets he was building from scratch.

Joe Davis volunteered to go into Bill's office and start calling the firms listed on the paper sack to verify costs and delivery times. I certainly had not reached a decision yet but it was only 10AM.

Mike Foley was a rare jewel. When he finally spoke with me, his Kiwi accent was barely discernible. He had a deep voice that would create an image over the telephone which always shocked people when they met him. You knew he was not American, but were hard pressed to decide which 'British' country he hailed from. Much later in life I would learn a great deal about 'Kiwi ingenuity', which Mike had in spades.

New Zealanders had grown up in the 50s through 70s with only a whiff of modern devices. A socialist government stagnated technical progress and forced clever-kiwi-lads to build sophisticated tools and implements with 'bailing wire and gum tree resin'. Mike had the uncanny ability to look at something that cost $100,000 to create and then duplicate its functions (if not appearance and precision craftsmanship) for maybe a tenth of that. The total cost of going into the 'foundry business', as Joe Davis would come back and tell me in a few hours, was "under $5,000". Later, after reaching the decision, we sent Mike out with our 'go-fer' and a van to make the rounds of Oklahoma City junk yards and machine shops to round up what we needed. Joe's telephone prices were first approximations. Bill Smith later told me Mike found everything he needed, including two dump trucks filled with sand deposited in our alleyway, for under $2,000. The amplifier housings were getting closer - I hoped!

Mike made a bed for himself in a corner of the newly partitioned Bickel work area (the one condition Bickel demanded - so he did not have to 'look at' all of the 'heat and fire') and adopted the Richey lifestyle; on the job site 24 hours a day. Two days after the equipment was in the shop, he was walking down the hallway smiling from ear to ear carrying a sand cast half-housing to Richey for approval.

Over a rare beer break, I got him to tell me about himself.

"Where did you learn to do this?" was an early question.

"I never learned," he answered, not a man of many words.

"Making sand casts, melting aluminum, pouring molten metal?"

"Never did it before," he answered. Joe Davis, always present, poked me in the back with the stem of his pipe. But he was smiling when I turned around to look into his face because we had just shipped the first set of amplifiers up to Medford and a waiting Stan Wigh.

Shortly after that 'victory celebration' Joe took me out to eat lunch. Bill Smith was sitting on - as in processing - around 8 brand new cable system quotes spread from Michigan to Florida, North Carolina to California. One query that had just come in was a worry - Sulphur, Louisiana, population over 20,000. Not a big town, certainly not a city, but at least five times larger than anything we had tackled to date.

"This is going too good," Joe began.

"How much too good?" I asked.

"Maybe a million and a half or more too good for my bank. Don't get me wrong, I love picking up 20% of all of these new cable systems and having the right to sell it back to the majority owner after 3 or 4 or 5 years at a price I set. But the bank is starting to wonder what they

are doing lending me money for cable systems so far removed from Fort Smith."

"You are telling me in your kind, fatherly way that we have out grown the nest?" I asked.

"Precisely. Let me off the hook for future systems unless they are more like Medford or Brazos Valley Cable (Calvert et al in Texas). I definitely am not able to handle Sulphur, if you do it." Months later I would recall the conversation and wonder if Joe had been trying to tell me he didn't think CADCO could handle Sulphur either. But that is getting ahead of the story.

"So we need to find someone with deeper pockets who thinks like Joe Davis?" said I.

"Precisely, again. I may know of someone."

I would miss my times with Joe, the kindest, most stable man I had known for decades. He continued to hang out, built a few more 'small' systems of his own and continued to be a major CADCO customer. But it was time to shift gears. Up to now when Joe and I shook hands (often a verbal hand shake such as - "Is this OK with you" and an affirmative answer) that was it. Neither of us would break the bond.

Another Joe

Joe Driscoll came into my life; a Dallas oil man turned business financier. Joe Davis knew of him but had never met the man since Joe Davis, like any good Arkansas man living on the border of Oklahoma, had an oil well or two. Or twenty. Once back in the early 60s I had met some Dallas business people who at the time displayed a keen interest in acquiring something I owned; Horizons Publications Inc. I put Dallas folks into two categories: (1) complete cowboys in the sense they shot from the hip, expected you to take their word as their promise and bond, and then as often as not disappeared in a cloud of dust into the sunset just when you needed them most. And, (2) those who had attended or thought they had attended Harvard for their MBA in business. The latter group moved as slowly as the cowboys moved fast, they waited until the last penny on the table had fallen into their pocket before signing a deal, and you never knew where you stood with them. Driscoll was ten percent #1 and 90 percent #2.

The man was an enigma from day one. He insisted I take his personal last-year US Income Tax filing (all 90 pages of it!) to 'study' and he asked for mine in return (all 4 pages). He was perhaps 60 at the time, short and slender, never married. The tax return suggested he was earning in excess of US$9 million a year in reportable income but if you studied the last 80 pages it was equally obvious he had found a tax accountant who understood every nuance of the US tax system. Driscoll would counsel me on the 'importance of being diversified' which was his phrase for having money in 'as many cookie jars as possible'. He was everything I was not - highly structured, exceptional at organization, totally predictable and hard as nails. He 'saw' CADCO

from a different view than me and had I been more perceptive (read, older and more experienced) I would not have been so quick to take up his offer. CADCO as a corporate body was in shambles. We were selling so much equipment, and we had such a high profit margin, that even Bill Smith as bird dog was unable to keep track of expenditures versus work areas. Joe Driscoll immediately insisted on bringing in a full time 'lead accountant' whom, no surprise here, he selected. This guy created reams of new expenditure and work reporting forms and within a month we lost 7 good employees who simply refused to fill out 'those god dam forms'. The accountant ran into a brick wall at Richey's Lab and I finally had to sit down with Driscoll and 'work a deal'. Richey became my personal problem, everything that cost money in his lab including Richey and his by-now two assistants came out of my personal income. In effect, a small engineering company buried inside of CADCO. Driscoll struck engineering expenses from the books and my 'salary' or draw went up by the equivalent. Then of course I had to hire an accountant to 'manage' the CADCO Engineering Inc. operation because in theory Bill Smith could not deal with anything to do with Richey or engineering because it was no longer part of the master CADCO! Driscoll decided one day the 'desk space, telephone use, electricity' being consumed by the accountant for CADCO Engineering had to be charged back to me as well. And of course the space Richey and crew occupied.

Richey was smoking more than ever and although I had saved him from the dictums of the new lead accountant, he was being quizzed whenever he stuck his head out of the door or walked back to speak with Mike Foley. To stop Richey and ask him a question took his mind away from whatever he was concentrating on at the time. By the time he dealt with the question and got back to his lab, he was exhausted from the interruption and distracted. So he sat in the mess that was his lab and smoked a half pack of cigarettes attempting to regain the same mental frame he had when he left the office to walk down the hallway. Two months into this unhealthy situation I discovered he was peeing into a coffee or empty Coke can when nature called, just to avoid opening his door!

This was not the CADCO of a few months prior. From a jolly, happy, one-for-all and all-for-one camaraderie it had rapidly turned into a Harvard MBA's concept of 'how a business should be run'. Driscoll was cagey about the changes. One small change at a time, without fail for each visit he made or on those occasions when he called me down to Dallas. The latter was, I soon worked out, largely to enforce upon

me his vision of corporate structure. His office as a model of corporate dignity and efficiency while ours was someplace between chaos and a riotous crowd racing to tear down the goal posts at the end of a football game. Joe's had decorum. Ours had Richey's coffee can filled with a week's collection of piss. Joe wanted to visit with Richey on one early trip and I had Steve come into my office. Joe pressed Steve for details of what he did and what his background (read 'credentials') were to 'qualify him' to do what he was doing. Steve's answer still rings in my ears.

"I get up from the couch in the morning, smoke a couple of cigarettes, drink a can of coke, piss and pick up my soldering iron. That's my qualification."

Driscoll had wanted to visit 'the lab' but after Steve's answer decided there were some things he had better leave alone .... for now. Joe did not drink, ate only fresh fruit and vegetables, never smoked, and had a personal trainer who came to his office suite's built-for-Joe gym four or five days each week. A full time valet selected his clothing and on occasion accompanied him on his trips to Oklahoma City (yes, that raised some eyebrows). Richey was wearing the same underwear - if indeed he wore any at all - that he had on a week ago. End of meeting.

Going backwards in time, our TECH TALK publication was laying a foundation that would allow me an escape valve early in 1974. At first TECH TALK was a alternate-monthly 6-1/2 by 8-1/2 inch 24 page publication that carried the latest in TV reception technology and some pointed promotions for CADCO. Sales erupted so brilliantly after the first initial issues that it soon became my major effort each month. As TT entered the second year, the Federal Communications Commission (FCC) was being pushed by the television broadcast industry to find some way to nail the lid back onto cable television expansion. In 1972, cable reached barely 15% of US homes - a long ways from the 70% of today. The FCC released their latest rules in February (1972) but planned at the time to make some rules effective over a period of 5 years; through 1977. Their reasoning was cable had gone without any regulation for more than twenty years and logic suggested complex, new, rules could not be adhered to in a month, year or even two. For many cable systems, as an understanding of the rules sunk in, there would be major changes in the way they did business. Some cable operators would find the rules so expensive to comply with they would sell out rather than continuing in the cable business. The broadcasters argued that cable firms were 'exploding' and threatening to cable-up major cities, such as New York (where, by the way, because of the prolifera-

tion of tall sky scrapers blocking direct, off-air, reception, cable turned out to be a tremendous asset for the city). The FCC reacted by creating new rules for cable. In a nutshell, the only way you could build a new cable system under the then-proposed rules was to get Federal permission first. Up to this point, if you had a 'municipal franchise' to operate, nothing else was required. The logic was that people in a town knew whether TV reception was poor or not, and if it was, cable was an answer. But the FCC in Washington (DC) had no concept of what TV reception was like in Gridley, Kansas. TT was to become a 'voice' for the smaller town cable builders and we had a selfish reason. If these new rules went ahead as proposed, our exploding business would burst like a balloon stuck with a pin.

Driscoll did his homework, and he knew about this threat. So he encouraged my concept of our slow but deliberate 'conversion' of TT from a totally house organ to a spokes-publication for the small town cable operator. By early 1973 TT had become the pivot around which a new organization would form. The smaller cable operators, as differentiated from the guys wiring up New York City or Santa Barbara, wanted a compromise. It was obvious the FCC was going to go ahead with their rules - now, how do we get the smaller guys out?

Cable Operator Kyle Moore, who lived 50 miles outside of Oklahoma City but who had nearly a dozen small cable systems with 500 or fewer subscribers each throughout rural Texas, Oklahoma, Arkansas and Kansas, sat down with me to work out a battle plan. I suggested we coerce (the correct word) the FCC into holding a series of 'regional small cable operator meetings' spread throughout the USA. I said I would attempt to get somebody of at least middle-bureaucracy authority from the FCC to attend, to speak about the rules, to answer questions and (here was the important part) "personally feel the wrath of the Joe Davis crowd" in attendance. Tech Talk would host the meetings with CADCO paying the cost of each session.

Looking back nearly thirty years hence, it was a brilliant plan. The FCC was under intense pressure from both sides. The major cable operators had their own 'trade association' (NCTA) with whom I had been acquainted and occasionally friendly from 1960. The NCTA wanted the rules adopted but in the process, they wanted the right to create made for cable programming. 'We', on the other hand, gave not a dam if the FCC put the clamp on the larger cable systems; just leave the little guys alone!

The Commission was receptive to a compromise. Guys like Kyle Moore and Joe Davis were actually performing a valuable community

service (never mind that in the best of American tradition they were getting wealthy at the same time) by turning towns like Poteau, Oklahoma into modern communities with the addition of multiple channel television. It came down to a 'numbers game' in advance of the rules going into effect, before the compromise happened.

"How many cable homes will be considered small cable and at what point does a cable system become big (and have to abide by the new rules)?"

The first joint TT/CADCO/FCC meeting was held in Little Rock, Arkansas June 4, 1973. The FCC was represented (brilliantly, I might add) by a young bureaucrat named Tony Cavendar. Sixty-one cable operators, who owned and operated nearly 200 cable systems, turned out from Arkansas and 5 adjoining states. The meeting was scheduled to last 90 minutes; five hours later we were still in heated debate and Cavendar would confide in me, "The light suddenly clicked on; the Commission had to do something here!"

Seventeen additional meetings followed, geographically spread so as to be within drive-time reach of virtually every cable operator in the nation.

The entire stature of TT and CADCO changed. Driscoll monitored the growth in new system inquiries and was flabbergasted by the interest being shown. But something much more significant was happening behind the scenes. Cable operator Kyle Moore and fellow small town cable operator Ben Campbell from Texas arranged between them to attend all 17 of the remaining sessions. Cavendar was the FCC rep at the first three and by the end of the series they were good friends. At the second meeting, held in (Austin) Texas, the group in attendance heard a proposal from me.

"This meeting has highlighted how different small cable is from big cable. We use the same types of equipment, and we deliver similar services. But the small town operator is part of his community, he often lives in the community, and knows his subscribers by their first name. Big city cable subscribers have a vast array of entertainment choices, multiple newspapers, loads of local radio. In a typical small town cable community, there is a weekly newspaper, no radio station, and TV reception is terrible without cable. Our subscribers have no choices like the big city subscribers do. Cable in a small community is an important asset, for which there is no similar replacement."

Kyle Moore then spoke. "I hate associations, I dislike someone else involved in what I do, I am a one-man band like most of you. But there comes a time when a one-man band needs to sound louder than

a single instrument; this is one of those times. We need to have a loud voice in Washington, continually monitoring the FCC, constantly meeting with folks like Tony Cavendar. What is at risk here is our very livelihood. We could lose it all with a stroke of a bureaucratic pen. I am proposing that right here, tonight, we form a trade association to represent the *small* town cable operator."

Ben Campbell: "Kyle, Bob and I are suggesting we call this the 'Community Antenna Television Association' or CATA for short. Bob has spoken on the telephone with an attorney who practices before the FCC and he has agreed to consider representing us there. What I want to see is how many people here agree with us, and are willing to join CATA at this time and agree to put ten cents per cable subscriber per month towards CATA's efforts to save our business."

Every operator in the building raised his hand and Ben took their names and addresses. CATA was off and running and Kyle or Ben for the next sixteen FCC meetings would rise from the floor to pitch CATA (by the end of the series of meetings the FCC staffer was acting as 'host' to Kyle (or Ben), introducing him to the crowd and asking him about CATA - a nice touch!).

By the start of fall 1973, CATA was a minor force to be reckoned with. Richard L. Brown, an ex-FCC attorney now in private practice and his soon-to-be partner, Steve Effros, would represent CATA before the FCC. Almost overnight, a slugfest developed between the NCTA and CATA. The 'national' group said they *already* represented 'small cable operators' while Kyle Moore as the newly elected head of CATA thought otherwise. The cable industry would never be the same again - it no longer spoke as one voice and the FCC was anxious to act hospitable to the small guys because of Tony Cavendar's series of internal FCC memos that followed the 18 CADCO sponsored meetings.

Predictably, business for new cable systems abruptly slowed down. Folks who had been considering cable investments, like Eugene Kretchner in Medford, Oklahoma a year prior, decided to 'wait until the rules went into effect'. The big city systems redoubled their construction efforts at the same time, anxious to get as much cable strung up on poles (and therefore 'grandfathered' under the older rules or lack of rules at all) - before the anticipated rules took effect. CADCO immediately felt the slow down; systems in house for quote were still alive but the would-be builders were now dragging their feet.

Joe Driscoll, October 1973 to me: "You did not see what would happen if you did this?" This from a man who was greatly supportive

of the effort months prior. I said the thought had crossed my mind but I dismissed it because the long term salvation of the industry was much more important than the temporary sales curve of CADCO.

He lost his temper, one of two times I saw that happen. He held all of my CADCO stock as a further 'insurance' against my leaving without his permission, sure that he was I would not do something that 'stupid'. I called Joe Davis and asked him what I should do. Joe was the founding secretary of CATA and his sentiments exactly paralleled my own. He suggested I ask the same question of Kyle and Ben, which I did.

Kyle: "Don't you have a fall back business plan? You always do."

Ben: "Swallow hard and stay with CADCO. This will turn around as soon as the FCC agrees with CATA and you'll be back overwhelmed with orders again." By coincidence, Ben's father John Campbell had started his own cable equipment firm (CasCo, later to become TOCOM) in the 1950s. We were actually competing with John Campbell, yet his son (who split his time between running his own cable systems and working for TOCOM) was advising me to 'stick it out' and was even buying equipment from CADCO.

On a whim I urged Steve Richey to 'do lunch with me', something we never did because he valued his time so highly and I knew better than to drag him out of 'the lab'. He was working on a new microwave project I had conceived at the time, quite unbeknown to Joe Driscoll; one of the fringe benefits of having Steve working for me, not CADCO. He reluctantly agreed to lunch and I told him of Driscoll's overt threat as well as what Joe Davis, Kyle and Ben had said.

"You know how much I hate business," he began. "You have to run my check book for me!" I did. "Look - CADCO was a great place to be when it started. But this Driscoll cat has made it difficult to be creative. I have been considering jumping ship and am only here today because of you. Let's go out and start a new one, just the two of us and this time we keep it small on purpose."

And he proceeded to draw on a paper napkin his 'next generation' equipment, which he had already begun prototyping in the sanctity of his off-limits lab. The message was clear - leave him alone in his lab, "don't bother me with 'business stuff'."

A big decision. CADCO started in my garage with the All American Sports Amplifier. I held some valuable patents and had earned a reputation for being knowledgeable about small town cable. We had done this without 'threatening' the big guys (Jerrold, S-A et al) because they did not have the time or production power to cope with the smaller

communities anyhow. There had been a niche and circumstances had allowed us to fill it, without any real competition. I had some of my best friends working for CADCO - Stan Wigh, Bill Smith and many others. And a payroll of over 60 for whom I felt a personal responsibility. What I did not know was how far Joe Driscoll would push before he stopped. Did he want 100% of CADCO? Did he realize that the company would be significantly different without the likes of Richey, Wigh and Smith? Or me? I went back to Joe Davis and we discussed the options.

"I operate alone as you know. I form opinions about people and I either trust them or not. There is no grey area with me," he began. In my wallet, where it had been for two years and would still be when I changed wallets five years later, was a check drawn on a Fort Smith bank. Joe had signed the check and given it to me as I was trying to unwind from Murray Moss. There was no date, no amount, and no 'pay to the order of' filled in. Joe trusted me so much that he had handed me the check one day with a terse statement.

"If you ever get into a corner and have exhausted all avenues of escape, fill this out for whatever you need and it will be paid by my bank." That was why I always went back to Joe when I seemed to be heading for a corner.

"Driscoll sounds to me like someone who would only help when there was a signed and sealed contract which gave him the rights to your next born son. I suggest you get out but do it on your terms, not his. Start planning now and pick your time carefully. This 'FCC thing' will blow over and the cloud now over cable will go away. Use that to your advantage." And he relit his pipe and leaned back in his 'special chair' I had located for my office; the 'Joe Davis chair' which was comfortable on his ageing back.

The two 'Joes' never met, Davis always found a reason not to come by (it was a four hour drive from Fort Smith to Oklahoma City in those days) when he knew or suspected Driscoll would be around. But they came close to meeting. Driscoll was on a visit and insisted on checking the back order status against the equipment being shipped that day or week. Paper was spread out in the shipping department where some equipment for a new Joe Davis cable system was being packaged.

"Where is this going?" Driscoll asked. I dug down into the back order pile and produced the Joe Davis order. It had been paid for at the time of the order, we would not even have to invoice Davis.

"But this is on back order and there are..." fingering a stack of much older orders on top, "several dozen here which are older and

ahead of this one. Why is his going when the others have to wait?"

He had asked for an inspection of this department because our back order status for some of our equipment had grown from two weeks to two months very quickly. In his MBA way he was trying to understand where the system was failing. I knew why - the parts we needed to complete the devices on back order were not in house. We were back ordered with the parts suppliers (shades of the AASA!).

"Substitute parts from other suppliers," was his next statement. I answered that the circuits in the amplifiers have been optimized around specific parts from specific suppliers.

"Can't Richey change the design so we can use other part suppliers?" Another MBA conclusion. Of course he could, but that would take time, the boards would have to be redesigned to suit the new parts which would invariably have different physical dimensions, and then we'd have to locate alternate parts suppliers who wouldn't put us on back order and restart the process all over again.

Driscoll's reaction was more MBA. "I don't think Richey is very good at what he does," said he, loud enough for the entire shipping department to hear him. You could cut the air with a knife; everyone there worshipped Steve even if they only bumped into him once a month. I did not comment.

"Back to this ... Joe Davis? ... order. Why is he getting equipment when his order looks very similar to those that are much older. What's special about him?"

"He paid by check with the order, we won't invoice him for payment, and because of prepayment he gets moved to the front of the line," I answered. It was a truthful answer but of course neglected to explain 'who' or really 'why' Joe Davis always received special treatment.

"Change the policy," said Mr. MBA. "Take his check, put him in the middle rather than at the back. He gets what he wants faster than normal but you still get to ship someone ahead of him, bill them and collect their money as well. Then you have this Davis guy's money and money from someone else. That's how we improve the cash flow around here."

Driscoll and his personal valet had been gone not more than ten minutes when Joe Davis drove up in his Lincoln and went directly to the shipping department to load up his order.

Armed with Joe Davis advice I grabbed Kyle Moore the next time he was in to pick up an equipment order and we talked further about CATA. It was now late in 1973.

"Now that CATA has a Washington attorney and through him an office close to the FCC, what about making CATA more formal?" I started. Kyle wondered what 'formal' meant.

"Open an office, here in Oklahoma City, an hour from your house, close enough to allow me to spend some time there each day ...."

Kyle: "You don't have time to pee, how do you expect to find time to add a CATA office to your daily rounds?"

I shared some of Joe Davis' advice without identifying Joe as the source.

"This Driscoll guy, eh? Are you saying you might leave CADCO? Heck man, it's your baby!"

I then mentioned my discussion with Steve Richey. Kyle was one of the very few customers or drop-ins who could knock on the door and then walk in on Steve without an invitation. They were not exactly friends but Steve was always pleased to have Kyle there to answer field questions. For all of his self-made wealth in cable, Kyle Moore was still the guy who put on a climbing belt and went up 500 foot towers to maintain, repair and install antennas. And CADCO preamplifiers. Steve knew Kyle could be counted on to make straight forward, no bullshit suggestions about the way CADCO equipment was working (or as happened, not working properly) in the 'real' world.

"I suggest you try to do both for awhile. I agree CATA should have a real office, this business of processing membership payments has become a headache. What else would the office do, other than provide general information on the status of FCC activity that will effect us?"

That was the question I had been waiting for. Kyle was extremely grateful that CADCO's Tech Talk existed - it had provided a CATA forum and an excellent way of communicating CATA ideology to the smaller cable operators. Out of an estimated 4,700 cable systems spread throughout the USA, only 1,700 belonged to the original cable association - the NCTA. That left CATA with a significant potential for membership and Kyle's efforts had pushed it past 400 in just a few months time.

"CATA should have its own magazine, a monthly magazine, devoted to the basic principals of building, operating and owning small town cable systems. I would like to call it the 'Community Antenna Television Journal' and in it we'd mix the latest FCC and regulatory news with basic material about equipment and system design."

Kyle appreciated my publishing experience. He was also very sensitive about the close relationship existing between the major monthly magazine in cable TV (TVC) and the rival NCTA organization. CATA

was getting 'wiped' by each edition of TVC and it did not help that the founder of TVC had been me, through the original 'Television Horizons' magazine I started back in 1961 - which after a fortuitous fire had risen from the ashes reborn as TVC, without me. It was a ghost of my past come back to haunt me and the owners of TVC (Stan Searle, Robert Searle and Patrick Pogue) were eternally on my own private 'shit list' for a host of reasons longer than either of us wanted me to recount at that point.

"How much money will it take to start this 'CATJ'?" he asked. I suggested that he, I and a fellow cable operator in Oklahoma named Bunk Dodson (now - *there* was a real Oklahoma guy!) put up $10,000 each and that would 'carry us' through to profitability. CATA was a 501C3 organization, non-profit with the IRS. Publishing a magazine would only complicate the 501 status so I was suggesting that CATJ, as the 'Official Journal' of CATA, be privately owned. We would share a common office, the magazine would pay a share of rent and a share of staff thereby reducing the operating costs of CATA. All of the subscription revenue, any advertising income would stay with the magazine and the magazine would provide 'editorial space' each month to CATA for statements relating to policy and FCC activities.

"How soon can we start this?" he asked. I suggested April 1974 (it would turn out to be May when Volume 1, Number 1 was distributed). By January 1974 CATA had opened offices at 4209 NW 23rd St, Oklahoma City with sufficient room to house a magazine production staff. The first issue was created over three months with issue numbers 2 and 3 on parallel paths. May 1974 carried 7½ pages of advertising with 56 total pages. In five years the magazine would be averaging 30% advertising and hitting 96 pages some months.

What we lacked in advertising revenue I tried to make up by being clever. Advertisers were, frankly, frightened to death by our 'mission statement' - to "rescue cable TV from the grasp of the big companies." They saw this (and rightfully so) as a 'red flag' that strongly suggested, if they dared to advertise in CATJ, they might lose sales to the big cable firms who were backing NCTA in this horse race. Anticipating this, and knowing we had a limited amount of money ($30,000) to turn CATJ from a drain to an income producer, I went to work in January on some supplemental income sources for the magazine. First was a 'Wall Chart' which would display for technicians what TV pictures looked like when reception was not perfect, and, show under each photo how the TV picture could be cleaned up. The next was a deal with Steve Richey. Steve had the ability to design and build a number of

low-cost pieces of test equipment, equipment which simply did not exist at the time. Cable systems used Blonder Tongue and Jerrold FSMs (Field strength meters) to set system levels and check for faults, but there was nothing beyond that available. I had, with Stan Wigh, and a school chum named Jim Kennedy, experimented with low cost spectrum analyzer designs a few years prior and I explained to Richey how this might work. In return for creating new test equipment hardware for cable, which would be sold through CATJ in 'build-it-yourself' kits by the magazine, I promised Steve he could make up the kits (once again, that AASA experience!) and receive a profit for each one CATJ sold. This made CATJ unique from issue one - cable specific pieces of test gear which any semi-competent tech or system owner could sit down and construct from kits and instructions appearing in the magazine. This modest beginning would turn into a revenue producer sufficient to allow Richey to tell Joe Driscoll, "Adios Mother," in less than a year. Competitor TVC tried to ignore us, certain that our 'small magazine' would fold or become so 'controversial' that no 'reputable firm' would dare advertise with us. It was a tough advertising sell for the first year with TVC's Searle brothers in there hitting the advertisers with the fear of retribution by NCTA members. But the down-to-earth technical material, which TVC neither understood nor could equal, turned the tide.

'Small magazine' was a euphemism. The Searles intended it two ways. First, they had a circulation boost on us since we started with zero paying readers in May 1974. Plus, I had convinced Kyle and Bunk Dodson we should start with a magazine that was physically small - measuring 6 inches wide by 9-1/4 inches tall. TVC was a more normal 8-1/2 by 11 format. My theory was technicians and small system owner-operators needed something small enough to stick into their hip pocket, kind of rolled up. TVC, which didn't interest technicians and technical types anyhow because of its 'management slant' editorial approach, wouldn't fit into a pocket without ripping the seams.

Ultimately there was a downside to the 'small' size. Firms that advertised in TVC had to create special advertisements to fit our format; another expense (and effort). By October in 1975 I would become convinced that we would double our advertising load the first month we became 8-1/2 by 11 - simply because advertisers could run the same (size) advertisements with us as they already had available for TVC. By that time we were so well established as 'the technical journal' of cable TV that we could be almost any size and still have a readership two to three times that of TVC. But this is getting ahead of the story.

Kyle Moore opened each issue with a 'CATA-torial' as President of the trade group. I enjoyed writing those more than anything else in the magazine and we didn't try to hide the fact that Kyle could not write his way out of a paper bag. But the thoughts were his and after I drafted each lead-editorial, Kyle always read them through and suggested changes.

The disengagement from CADCO went roughly. Joe Driscoll liked it when one of the accountant ladies was shifted to CATA; it saved CADCO money and his lead-accountant was sure she was spending too much time on the CADCO Lab or Richey anyhow. He also liked it when the sales curve bounced back up but he was still having a difficult time figuring out what Richey and his assistants did 'behind that closed door'. What they were doing was creating Richey's own escape plan, built around new products which would never be produced with a CADCO label. To be fair to Steve, he was also making massive improvements in the cable TV equipment line as the component parts industry had just been exposed to an entirely new line of TRW (brand) amplifier devices which greatly simplified (and made less costly to build) the trunk, bridger and line extender amplifiers.

Sulphur, Louisiana. My exit strategy involved getting CADCO's largest-to-date system started into the construction phase. A local radio station owner in the 21,000 population town (they thought it was a small 'city' locally) of Sulphur had been bit by the cable TV bug. Now Sulphur is one of those towns balancing between civilization and hell, closer to the hell line. It involved 6,000 homes to be passed, the equivalent of twelve Medford (Oklahoma) systems by cable plant length, seventeen if you compared the population of each. It also involved a local power company that saw the radio station owner coming. They had been looking for a cheap way to rebuild their utility pole plant, long ago rotten to the core. It was the only town I ever visited with power poles (to which the cable lines would be ultimately attached on a rental agreement) you could take a 12 inch long screwdriver and using just the palm of your hand sink the screwdriver clear up to the handle. The poles were that rotten, and soft. And unsafe. David Pangrac, our field supervisor, came back shaking his head after the first street by street inspection.

"The power company is going to stick it to (name of our client)," he advised. "They have maybe 55% of their poles that will require replacement before we can safely attach our cables and equipment. He'll be expected to pay for everyone of those 'pole change outs'." What that meant was the ultimate total cost of the cable plant would depend

upon two factors over which we had no control: (1) The amount of money the power company demanded from the cable operator for pole replacements, and, (2) the speed and organization behind those replacements. David related that on any given street, there would be one pole that was OK followed by two or three that were bad. You couldn't start cabling the street until all of the bad poles were replaced. And that was going to play havoc with any kind of construction schedule.

In a community the size of Sulphur, you tried to build it in sections so perhaps a quarter of the town could be built and turned on allowing the operator to begin selling and installing cable hook-ups while you went on with the unfinished balance.

"We'll be able to do a street here, another there but rather than taking 6 months, I suggest we allow nine and price it accordingly," Pangrac wrote to me. This from a man, smart, but inexperienced beyond anything having more than 1,200 homes to cable. The total cable plant when installed would be 110 miles in length and use around $1,920,000 in CADCO equipment. This would keep CADCO working overtime for every bit of the nine months Pangrac had forecast; ultimately much longer as it turned out.

Driscoll saw dollar signs and not much else. I suggested he go with me to Sulphur to visit the site as we had not signed a final contract and my intuition told me not to do so in my own name. Instead he sent Stan Wigh to Sulphur and asked for his independent assessment. Without telling anyone at the time, I asked Joe Davis to go down and give me his feeling. He knew about the rotten poles but not much else negative because I wanted him to tell me what 'he thought', not what he had heard from me, before going.

The two reports were 180 degrees out of phase. Wigh apparently saw Sulphur as CADCO's ticket to the big time (he loved to dream about, "wiring Oklahoma City one day") and Joe Davis saw it as a deep pit out of which CADCO might not emerge whole. Joe was right, Stan was wrong.

I managed to avoid personally signing the Sulphur contract by making up a sudden trip to Washington, DC just when the contract was to be formalized. Joe Driscoll signed on our behalf. One of the last charitable things Steve Richey did for CADCO was to introduce the new TRW chip amplifier line for Sulphur which cut 30% off of CADCO's costs. Joe Driscoll immediately changed his mind about Richey's qualifications on the strength of this innovation. When I came back from DC, the paperwork was all done and there were smiles

stretching from the janitor and Mike Fowley's sand cast builder to Driscoll's lead accountant. I had already made up my mind - on June 1st I would be on leave and on December 31, 'gone'.

Alas, I had grown accustomed to the pay checks and it was certainly going to be a while before CATA and CATJ could equal them. So while in Washington I had snooped around looking for something to fill the earnings gap. CATA's attorney, Rick Brown, gave me some insight into the FCC's new rules for CB radio. Because Rick was ex-FCC, and because his law office represented the largest manufacturer of CB radios in America (EF Johnson Company of Waseca, Minnesota), he had certain knowledge about the expansion of CB operating channels (coming in 1977) and some more immediate changes, about to happen. Over dinner one night with the President of EF Johnson (a fine man whom I had not previously known by the name of Dick Horner) they talked about how Johnson was planning to have brand new expanded-channel CB radios available on the day the FCC announced the rule changes. I took mental notes and rushed home to write a book. Well, a booklet, which explained all of the ramifications I could think of or that I had heard Dick Horner discuss over dinner. Then I went to Popular Electronics, CB Radio and a half dozen other publications and took out small time classified advertising in the issues that would break just as the FCC rule announcement came out. I knew the magazines themselves would not be likely to have the kind of detailed information I possessed, and even if they had an inkling of what the new rules would say, whatever they published would be a skeleton compared to my detailed insight.

"CB's New Channels - what it means" was sold for $10 a copy directly from a post office box I rented in Edmond, Oklahoma. The verbal word was all over the CB channels just as the magazines arrived in subscriber hands - most of what was being 'said' on the radio was wrong and shallow. I had the facts and a lot of people wanted the 'real' information complete with my insight into EF Johnson's plans for their new radio sets.

Within a week we had sold 1,200 copies - a quick $12,000. Within six weeks, over 10,000 copies before the bottom dropped out of the market. That gave the Cooper family the cash we needed to carry us through until CATA and CATJ grew into money earners. The booklets including postage cost us under $1.70 each in the mail so the profit margins were pretty swift. But the income they generated would come back to haunt me.

The timing was perfect. Just when Joe Driscoll announced he was

'acquiring' my CADCO stock and I would be leaving 'to explore new ventures' our Edmond post office box was so burdened with $10 checks that the post office delivered our mail in containers from the counter window. The booklet did other things. Because I knew (and wrote about) the new EF Johnson CB radios in such detail, Johnson got the jump on the competition in the sales department. Over dinner with Dick Horner I had suggested a clever way to sell twelve watt CB radios as legal 5 watt units. The FCC was attempting to be very strict with the CB power output aspect of the new radios. Existing radios, which the FCC gave manufacturers 60 days to dump or destroy, had been blatant in their transmitter power capability. Johnson was almost alone in sticking to the FCC's mandated 5-watt maximum power rating. But I knew from my friend Tommy Hoshall who sold Johnson products in Oklahoma City that it took a technician under 5 minutes to increase the power of 'stock' Johnson radios to twelve watts. Dick knew about this too but considered it a taboo subject for print. I suggested the new 40 channel radio instructions carry in large type up front a disclaimer advising people of the following:

(1) Do not under any circumstances remove resistor R12 from the circuit of the final amplifier tube.

(2) Doing so will destroy the warranty of this CB radio and illegally increase the power from 5 to 12 watts.

A drawing identifying the resistor '*not* to remove' was included. Horner asked attorney Brown what he thought of the plan and Rick decided to get a letter from the FCC which would exonerate and even applaud Johnson for taking this innovative step in insuring CB radio users, "did not cross over the line to illegal operation." The letter in hand, Horner immediately ordered the changes in the radio instruction manuals. The only suggestion he did not like was my attempt at humor.

"And of course you could pack a pair of wire cutters (to cut out the indicated resistor) with each radio in case the user does not have a hardware store nearby."

Johnson would come back to me several times over the next five years for additional input on a number of products. Rick Brown would engage me to design for him some cable TV systems he and his law partners would start at US Military bases in Alaska in the late 70s. I in turn would owe my freedom from a federal detention center to Brown but that is getting ahead of the story.

CATJ Days

CATA was in a cat fight. The NCTA was totally unprepared for the speed with which CATA took hold. They began a numbers game. The NCTA claimed 1,700 member systems but the great majority (CATA believed over 1,400) were owned by large MSO or multiple system operators. Their largest members operated more than 100 cable systems each so in fact the actual number of separate businesses involved in NCTA was quite small. CATA pointed out this anomaly in defense of NCTA claiming they represented "more than ten million cable subscribers, while CATA systems totalled under a million." It was a game of "we are more important than you (CATA)" which only added fuel to the broadcast industry anti-cable editorials pointing out the cable industry was split over the new proposed rules.

Kyle without my help came up with a brilliant plan to 'test' the new rules. Gridley, Kansas. I had suggested we needed something dramatic to force the FCC's hand should they not approve our proposed 'exemption' for cable systems smaller than 3,500 subscribers (that number changed daily). While all of this dragged through 1974, small town new-cable starts ground to a virtual halt. CADCO was deeply into Sulphur but the really small new ones similar to Medford simply went on ice. Even Joe Davis stopped building.

TVC jumped on this to 'blame CATA' (and by inference CATJ) for 'stirring up the industry needlessly' which certainly did not make our advertising sales any easier. The industry was polarized and we were the negative pole in the match-up. I warned Kyle and Bunk we might need to 'reseed CATJ' with additional money if things did not improve.

CATA, the trade association, meanwhile was growing from strength

to strength. Attorneys Brown (joined later by Steve Effros) from the Washington office were chewing up more than 70% of the monthly CATA budget but you could not pick up a related publication (there were - and are - many in the broadcasting arena) without reading 'NCTA versus CATA' in one forum or another. The more the NCTA attacked CATA and its position, the more CATA grew. Independent cable operators - the guys like Kyle and Bunk and Ben who built their own systems and ran them as hometown businesses - were extremely 'independent'. Those who attended the FCC meetings were quick to respond because they sat through five hour or longer intense debate and discussion. If you were a small cable operator, there was no way you could have that experience and not at least feel a kinship to Kyle and CATA. They fully understood the situation and the course was clear; band together or die one by one. Those who did not attend were non-participants, many had not been out of their mountain-buried small communities in Kentucky or Nevada or Colorado in a decade or more. 'Running a cable line' in Welch, West Virginia was perhaps a half step removed from making moonshine whiskey and very possibly attracted the same kind of entrepreneur. I came to know hundreds of these people by talking Kyle into hopping into his Cessna and making a flying trip to visit folks we knew should be CATA supporters and participants, but who had refused to communicate with us directly. CATJ was reaching them however and by September more than 3,000 had subscribed.

The basic arguments we jointly presented went like this:

1) Copyright. The FCC was in favor of cable TV systems paying copyright for programming. NCTA thought this was a 'fine concept' because they believed if we paid copyright then cable could go into the programming business on its own. HBO, ESPN were examples nobody foresaw in 1974 that would evolve from this line of thinking. CATA was opposed to paying copyright; in fact we believed that TV stations should pay cable for carrying their signals into homes which their tall transmitting antennas and high power failed to reach directly. After all, the TV stations 'counted' the cable viewing homes when selling advertising and collected money from advertisers for reaching these homes. Should cable not be able to participate in this no-cost-to-TV-broadcaster bonanza? Some TV stations even established Cable-Liason offices and appointed a staff to stay in constant touch with area cable systems, coercing those cable operators who did not 'carry' their channel to do so. One UHF station in Pennsylvania hired the most shockingly beautiful 'cable liaison officer' you can imagine in your mind. She had an

almost 100% record for 'convincing' cable operators to carry their channel. Who says sexual fantasy is a poor substitute for salesmanship!

The history of cable versus copyright was decades old. Cable had maintained from the first day in 1952 when it was raised they were merely an extension on the viewer's antenna - a better antenna than any single viewer could reasonably afford. It was a "shared 'community antenna'" and as such the costs incurred by the viewers to be connected to the 'community antenna' was a reasonable charge for building the antenna and laying the cable system out to reach their home. And in fact there were municipally owned cable systems, run by the local body, which did the same thing as Kyle Moore's 'commercially operated systems' but like garbage collection, an effort by the local body to improve living conditions in the community.

Several law suits had been filed against cable systems to test that theory. On March 4, 1974 - the year we are 'in' here - the United States Supreme Court finally announced a decision in a cable copyright case. It would become the 'law of the land'. Briefly.

Cable won. Based upon a 1909 Copyright Act, the high court found cable TV delivery of TV signals did not "constitute a performance" attracting copyright payments. A "performance" was analogous to a radio station playing a popular record over the air - the radio station "performed" the work by transmitting it to listeners. Cable was found not to be "performing" because cable made no programming (record selection) decisions - it picked up the TV broadcaster's signal and through the cable network passed it on unaltered to the subscriber.

The NCTA applauded the court ruling and then David Foster, President of NCTA, told the Associated Press:

"We have always felt that as a matter of qualifying cable to become a first-class member of the communications fraternity, we should accept this (copyright payment) responsibility. The NCTA (still) wants Congress to make cable TV operators pay copyright fees. This has been a difficult position for the cable industry to come to; there are still *many* cable operators who don't feel they should pay copyright fees."

'Many' included virtually every member of CATA. In between the NCTA's claim of 1,700 member systems and CATA's 400+ member systems were as many as 2,400 more that belonged to neither group. In fact, nobody really knew how many cable systems existed, a problem exacerbated by a lack of definition of what constituted a cable system. Laying between cable and individual home antennas was 'MATV' or 'master antenna television' systems. Firms such as Blonder-Tongue had

been creating and selling 'MATV' equipment from 1950 onward. The MATV concept was similar to cable - one antenna shared by as many different homes or apartments as could or would connect. MATV was typically used by apartment buildings and gated communities to reduce the forest of antennas required if each residential unit therein erected its own TV antenna.

MATV systems came in all flavors and colors. Some were installed by the building or community operator as a defense against antenna junkyards developing and their availability was included in promotional reasons why 'living here' was a good deal. Others were installed by private contractors who operated just like cable systems - they wired a building or gated community and then 'sold' connections to the system to tenants on a monthly or annual fee basis. It was this latter group that 'looked like, smelled like, acted like' one of Kyle Moore's community wide systems in places like Gridley, Kansas.

But lacking an 'official' definition of what a cable system consisted of, it was impossible to know where one stopped counting cable TV systems and began counting MATV systems. Size alone would not do it - some MATV systems had thousands of 'subscribers' connected to the 'master antenna' system. One 'MATV firm' boasted 55,000 subscribers, spread throughout hundreds of buildings in the eastern states from Boston to Atlanta. The owner was collecting monthly and annual 'TV fees' just like Kyle Moore, but he operated without franchise fees, without a community permit and oblivious to the FCC's onerous new 'technical standards'.

To suit the NCTA and David Foster, would some or perhaps all of these MATV systems also pay copyright? It was a thorny, contentious, debate. CATA referred to the proposed copyright payments as a 'viewing tax' on television. The NCTA, of course, took exception.

2) FCC rules. Quite independent of the copyright issue was a new initiative by the Federal Communications Commission to, in their bureaucratic way, "qualify cable as a first class member of the communications fraternity." The FCC in 1972 had reshuffled its staff creating a new 'Cable Television Bureau'. The television broadcasters had, after twenty years of pressuring the FCC, finally achieved a measure of self-serving control over cable through the 1972/1973 and now 1974 rules. One of the most onerous and difficult rule sections related to 'signal carriage exclusivity' and 'non-duplication protection'. This rule section essentially created 'zones of TV broadcaster influence' more or less shaped like circles around the TV transmitting tower. The circle was in two rings - an 'A grade' zone and further out to the edge of outer circle,

the 'B zone' territory.

All cable systems existing were required to 'register' with the FCC and declare which channels they carried, from where. Proposed, new, cable systems were obliged to file their proposed channel lists with the commission *prior* to starting construction. Within months the backlog at the Commission was stretching back a year or more - a new applicant could easily wait that long before he or she moved to the front of the line where the Commission's small staff would consider their application. The bureaucracy delays had two immediate effects:

1) Firms selling cable TV equipment were suddenly at the mercy of Washington as system builders were unable to move ahead until the FCC acted;

2) Lawyers working before the FCC were inundated with work to 'hand carry' FCC applications before the commission on behalf of clients.

Virtually every application (they were all placed on public file, meaning anyone could go to the FCC and inspect them - even before Commission staff had done so) was scrutinized by lawyers working for the television broadcasters. Buried in the rules were special situations some believed were created to give broadcasters a direct say in which TV channels could be carried (shown) on each cable system. It was all a matter of geography.

If the cable system was located 'beyond' (outside of) the magic B circle of *any* TV station, it could carry virtually any signal it wished - just as was true *before* the rules went into effect. But if the cable system (later defined as the cable system headend of antenna site) was within one or more B (or A) circles, the TV stations represented by those circles could claim 'exclusivity' - the exclusive right to show certain TV programs on the cable system. If the station was a NBC affiliate, cable could 'import' (bring in from a more distant station) no other NBC programming to the community. Unless of course two stations with NBC affiliation both placed an A or B 'contour' over the cable headend site. Then the fun began.

If station '1' had an A contour signal at the cable headend and station '2' had a B contour signal, #1 had certain extra rights. If both were the same contour signal level, they had equal rights - most of the time.

In the case of an 'A' and a 'B, the 'A' station could demand the cable firm delete from cable the programming transmitted by 'B' which 'A' also carried. This went much further than both carrying NBC News at the same time. Syndicated programming such as The Phil Donahue

Show was also included. If 'A' carried Donahue then it could demand cable delete B's carriage of the same program. Even if B carried it at a different time of day and even if the episodes on B were not the same as the episodes on A.

Why such complex rules? The FCC, charged with regulating technical characteristics of broadcasting, had crossed a new line and the rules adopted were in support of private contracts between broadcasters and program providers. Cable was a threat to broadcaster - programmer relationships and under massive lobbying pressure from both groups, the FCC became an enforcement agency for these 'private' contracts.

Cable answered with automated programming switchers. This was a short-life gadget of unbelievable complexity and an unfortunate high rate of failure. A day or week in advance someone sat down at the cable firm with parallel (side by side) advance TV programming lists and laboriously stuck 'pegs' into holes in drums whenever A had programming it demanded be exclusive to their channel. This in effect shut down B for anyplace from 5 minutes to many hours, for the length of time the programming conflict continued.

It got much more complicated, fast, and in the home viewers were hopelessly confused by all of the channels that came and went at unpredictable times. The TV broadcasters loved this of course - they were convinced that if they could control competition by making cable less attractive, fewer homes would subscribe to cable. Desperate, cable found more creative ways to keep subscribers happy. If station A and B were carrying the same program at the same time, and B had to be switched off, cable worked out how to switch A to B's channel. For the viewers, the blip during switching was hardly noticeable and it meant channels did not switch from programming to a blank screen any more. Both A and B channels were now carrying the same program, at the same time, but the content was only from one (A), not both, thereby temporarily avoiding the 'blank channel - nothing there' scenario which had so delighted broadcasters competing with cable.

Of course this required new pre-programmed switchers with absolute accuracy to the nearest second (the first worked overtime to be accurate to the minute). Top of the line products could switch at station breaks - that 2 to 4 minutes at the hour and half hour when each station cuts away from the basic network feed and in this way during the local station's break time, whatever announcements, commercials or program promotions run by B showed up rather than those from A - on the B (cable) channel. If after the break period B had to be

switched to A - to 'protect A' - the switcher returned the viewers to A. The effect of this was zero-gain for broadcasters. Cable viewers received the same content on both A and B channels, plus the individual commercials from A and B during those half and full hour commercial windows, never (well seldom) aware that during actual programming channel B was in fact channel A.

So many disputes arose over 'coverage circles' that an entirely new office was opened at the FCC to handle the confrontations. When a TV broadcaster applied for his construction permit, he had to include a detailed engineering study which always had a scaled map showing the location of the proposed TV transmitting tower, and then with two circles 'A coverage' and 'B coverage', the limits of his reach from that tower. The FCC when approving the application for a new TV station essentially granted the telecaster certain 'rights' within those two contour points. The technology available to create these maps made some fatal, flawed assumptions. Iowa and Kansas are flat and a 1,600 foot tall telecasting tower will produce an accurately defined zone of A and B coverage. But West Virginia, Vermont and most other states are not flat. The ground surrounding the proposed TV transmitter location undulates, goes up and down as ground tends to do in hilly or mountainous areas.

The map creators, who are engineers for TV stations, essentially ignore the undulations. They assume for purposes of drawing perfectly concentric circles that 'everyone is in Kansas'. (And I might point out that thirty years after this era being discussed, very little has been done about this invalid assumption.) The 'correct' approach would be to take into account the undulations, where hills and mountains intervene, where valleys are located, and to adjust (upward or downward) the coverage contours to reflect the effects of the terrain variations. Of course to do so would change 'perfectly round circles' into grotesque, terrain influenced jagged lines that jumped every which way as they went around the TV transmitter searching for the starting point of what ideally would be a Kansas circle.

And the problem. The community of Welch, West Virginia might in fact be located within the 'A' and 'B' coverage contours of several TV stations. But mountain ridges surrounding the valley-river side located community totally blocks those signals from Welch. So the guy who wired up Welch, Bill Turner, went up to the top of a nearby mountain, erected his antennas, and ran cable and amplifiers down the mountain side to where the people live. As cable engineer Leslie Farey, a native of the UK, once observed to me, "People in America did not

create towns on mountain tops, they did so in valleys and along rivers".

Under the FCC rules, Welch was 'served' by several TV stations placing a grade A (or grade B) signal contour 'over' the community. "Over" is the operative word - hundreds or thousands of feet 'over' (above) where the people lived. Without cable catching the signals on a nearby mountain top, there was no TV or only poor quality mountain-reflected TV signals.

Welch's Bill Turner (no relation to Atlanta's Ted) had to abide by the rules, granting 'syndicated exclusivity' and 'non-duplication protection' to TV stations which 'claimed on their maps' to serve the community. But who - in fact - because of the surrounding mountains did not reach anyone living there directly; only through cable.

Understandably the Welch cable operator was irked, "madder than hell" in fact. He was required to install special channel switching equipment, and answer volumes of subscriber complaints because, "some bureaucrat in Washington had adopted a rule that made no sense to Welch or its residents." His problems, technical and switcher related, were compounded by the exceedingly low revenue his small cable system generated, making $5,000 switcher machines totally out of his league.

The FCC came down hard on Turner when station WHIS (Bluefield, W Va) demanded he discontinue carrying WSAZ from Huntington (West Virginia) and Turner refused to abide. The FCC said that WSAZ must be turned off when WHIS was carrying the same programming. Welch exhausted FCC appeals and the Mayor of the town ordered him to 'lease to the city the WSAZ channel on his cable' during those periods of time when WSAZ was supposed to be turned off. "Tell the FCC that we - the city - will carry WSAZ on our leased channel and there is nothing they can do about it." Well, there was. A 'Cease and Desist' order was issued carrying sizeable financial sanctions (fines) with the FCC issuing a terse statement:

"We are sending a letter to the Mayor of Welch with a copy to Mr. Turner advising them that the commission will not allow such subversion of the non-duplication rules."

The FCC had adopted rules prohibiting a cable firm from 'censoring' or 'passing judgement on' the content which leased channels carried. The Mayor hoped Welch - the community run channel - was therefore able to carry WSAZ even though Turner could not.

To deal with situations such as Welch, the FCC created a special office to consider such cases; the 'Office of Special Relief' (as only a bureaucrat could have named it). But to get into the queue at the Office

of Special Relief the cable operator had to first hire a Washington FCC practicing attorney (it is a closed shop - to 'practice' before the FCC requires special permission and credentials), then he had to hire an FCC-approved engineering firm (same rules applied) to make 'signal measurements' in and around his community. And then the engineer and the attorney prepared a 'case study' filled with maps, photographs, and as many statements (petitions) from towns folk as they could muster. The 'case study' was the formal application for 'special relief' - seeking permission to be excused from the rules. By this point the cable operator had swept his community dry of petitions of appeal, letters from local business people, the mayor, and the dog catcher - all asking for 'special relief'.

But the battle was not over; it had hardly begun. Now the TV stations who had the 'A' or 'B' contours high above Welch had their opportunity to refute the 'evidence'. They, at the end of the day, wanted the exclusive right to serve Welch. No, they could not do this directly because of the mountains, but if they could convince the FCC the cable operator should do this on their behalf, at his expense, so much the better. The TV stations hired their own attorneys, and their own engineers, to make their case. Obviously the two sides presented conflicting material.

The Office of Special Relief operated under bureaucratic rules and the 'hearing examiner' had the same powers one allows a court judge. He hears the evidence, questions the witnesses, hears rebuttal and then goes away for a day, week or months to make his finding. If he rules in favor of cable and against one or more telecasters, there is a 'right of appeal'; the process would restart, all over again. And the cable operator was watching as his legal and engineering invoices rose steadily through four digits, jumped into five digits and seemed headed without slowing down to six digits.

This was basically open warfare. Cable's ever accelerating technology skills against the broadcasters ever escalating demands for FCC intervention. The FCC was moving into a wide range of cable areas simultaneously, including 'technical standards', 'franchise relationships (between cable and their townships)', and 'access channels'. The latter was innovative because it was the FCC trying to create special channels within cable's 'cable' for educational, religious, municipal and other self-styled 'worthy users'. In a few short years, New York City 'public access' channels were filled 24 hours a day with lunatic fringe programming including the hardest hard core porn ever seen on TV any where. The FCC insisted that the 'public' have 'free access to special

cable channels' in studios the cable company was obliged to build and operate without charge, and then ruled the cable operator and the city he served could not act as a censor for the material being telecast. Klu Klux Klan, Nazi and anarchist programming sprang up to fill this golden opportunity. But we are getting ahead of our time frame. It was this FCC regulation that Bill Turner and the Mayor of Welch had attempted to invoke in the tiny West Virginia town. Welch, the town, could telecast KKK or Nazi material on the city's channel, but not WSAZ.

Dozens, then hundreds of 'Welch' situations laid in the 'too hard to adjudicate' basket at the FCC. The Commission was stuck with 'predicted contours' which the TV stations had filed with their initial license applications. The cable operators, sometime being devious but more often reflecting what they believed to be the actual situation, tried to convince the Commission that 'predicted coverage' and 'actual coverage' were two different conditions. The Commission late in 1974 'tired' of the exercise and in one sweep of the bureaucratic pen posted this notice:

"(As relates to the signal coverage contour), a community located within a station's established (means - as printed on their map) priority contour (means Grade A) may (in fact) not receive a signal as great in intensity as the statistical average assumed by the Commission's rules because the Commission's definition of contours explicitly contemplates that there may be pockets of poor reception within any contour. Where pockets of poor reception are situated within a community in a station's contour, this of itself is not sufficient to warrant a waiver (of the FCC's rules)." Interpretation? Just because a TV station did not in fact place a suitable level of signal over or into a community did not excuse the cable company from treating the station as if it did in fact cover the community adequately. Thus, the Commission for purposes of enforcing its rules assumed everyone in Welch, West Virginia lived at the cable company's antenna site on top of the mountain, not in the valley below.

By October Turner was a distraught man and he wrote the FCC, "I am now between the devil and the deep blue sea. I can no longer afford to fight the City of Welch or the FCC. And I think it's time that you sent somebody down here to work out something. He will need to stay about two weeks."

When the FCC embarked on this 'regulation for cable' pathway in 1970, it brought in a half dozen young lawyers, recent law school graduates, to research the challenge and write the rules. Richard L Brown

and Stephen Effros were two of the six; the two attorneys who ended up representing CATA before the Commission (and later Congress). Both used the FCC spring board ("*we* wrote the rules - *we* know where the weaknesses and loop holes are") as a direct entry into a lifetime of well paying, private practice. It was the (new) American way.

Kyle Moore, Ben Campbell, Joe Davis and their brethren very much resented being dragged into 'syndicated exclusivity' and 'non-duplication switchers'. What had been a fun, small-time and very private business was suddenly very complex and excruciatingly 'public'. For the first time cable firms had to post and provide for public inspection the detail of their operation, in their offices. This in turn encouraged 'public interest groups' and even would-be competitors to 'dig deeply' into the private affairs of the cable firms. There was going to be 'hell to pay' as Joe Davis remarked to me one day. Joe was wrong - it was *already* 'hell to pay'.

CATJ's progress was wholly dependent upon subscription response. Which in turn was dependent on the magazine content. Before issue number one was in the mails (May 1974) the first four issues had been carefully researched and planned. We 'bragged' about sending out 7,500 'free sample copies' the first three issues although in truth while we would send a sample to anyone who had even a remote interest in cable television, it was difficult to find that many people out there. The subscription fees were modest - too modest even in 1974 dollars. They varied from $10 for non CATA members to $6 if the subscriber told us he was a 'system technician' as in being an employee of a cable system. The July issue marked the end of the free-sample mass mailings with a pointed reminder:

"With this third issue of CATJ, those thousands upon thousands of FREE sample copies we have been distributing comes to an end. No panic, if you are a paid-up subscriber. But after this fine issue you are now reading, unless you are a subscriber to CATJ, you will receive no more."

CATJ had developed a strong following in an unexpected place; the big time cable operators. While they were probably NCTA members and largely in support of the NCTA version of cable's future, they had discovered my (unsigned) passion for accurate information in great depth. Officially, I was still carried on the masthead as 'Technical Advisor' (Steve Richey was listed as 'Contributing Editor' while CADCO's antenna man, Tony Bickel, as 'Technical Editor' for reasons I no longer recall). CATJ routinely had far more material relating to the FCC's latest activities and rulings, as well as spot-on analysis of what

it all meant, than the TVC 'competition'. It helped that Kyle and I fully understood the rules and what they really meant whereas TVC's staff was more interested in selling pages of advertising than surrounding the ads with useful information. TVC was slick and glossy, just like the two Searle brothers and co-owner Patrick Pogue; CATJ was meat and potatoes and spot on accurate.

The same July issue had a full page advertisement from CADCO with a long list of 'surplus CATV test equipment' for sale. 'Surplus' was not quite accurate. Joe Driscoll was reacting to the down turn in new system business by thinning down the capital expenditure equipment. Much of the equipment up for sale had been in my personal laboratory at CADCO and as I no longer occupied that space, it was Joe's way of making a point.

Not a few cable operators were thinking like Joe Driscoll. Life had taken a turn, the FCC rules were threatening, and as Kyle Moore would say privately, "This is not much fun anymore." For many years a small 'brokerage' business had existed in cable acting as the intermediary between a willing seller and a motivated buyer. Cable systems were bought and sold monthly, usually moving from a private owner such as Kyle to a corporate owner such as TelePrompTer. Kyle was not yet ready to sell and retire but many were having such thoughts.

"What's your CATV property really worth?" read the Blackburn & Company Inc. advertisement appearing in the June 1974 CATJ. It continued, "Rules of thumb can be very misleading. It's worth what a buyer will pay. We have buyers. Let us tell you without obligation and in complete confidence."

Cable systems then, as now, bought and sold on the basis of cash flow, the number of subscribers, the growth potential. Nobody had a crystal ball that would reveal the 'coming of satellite distribution' back in 1974, although it was indeed very close to happening. For now, in the doldrums of 1974, a 'Mom and Pop cable system was valued from $250 per subscriber on the low end to over $1,000 per subscribing home.

'Mom and Pop' described operations such as those owned by Kyle Moore, Joe Davis, Bunk Dodson. They had been locally created, were typically more than five years old (some as much as 20) and were generating for their owners some very nice cash flow, even at the modest $5 per month typical subscriber fee. Most, however, had 'built out' to every possible home in the area that could be reached for a modest line extension cost so their growth potential was typically limited. Unless, of course, you factored in the arrival of specialized satellite delivered

'premium' programming which would in one shot often double the cable operator's 'pocket money' each month. But, HBO's plan to distribute premium movies and sport by satellite was not generally known and if it had been, only the most optimistic would have seen it for the cash cow it would become.

Late in 1973, the United States Department of Housing and Urban Development (HUD) announced it was funding an experimental 'communications satellite' called ATS-6. This satellite was launched in April 1974 to serve as a 'developmental and learning tool' for what in just a few years would become common place - satellite delivered television. I had gleaned onto the project while the satellite was still under construction and rushed into Steve Richey's CADCO lab with great excitement.

"We can design and sell satellite receivers for cable TV use!" I exuded, explaining the 2,600 megahertz down link frequency and the parameters HUD had established to receive its transmitted signals. There were many new challenges here and Richey was soon as excited as I. We quickly decided that the project would be 'top secret' and no-one else on the staff was to know about it. But the turmoil at CADCO through the first half of 1974 kept progress on the specialized receiver to a minimum. First of all, with no satellite operating (it would be late August before it did) we had no 'signal' with which to perform tests. The normal answer would be specialized test equipment to simulate the satellite's signal thus allowing the development of reception equipment. Unfortunately, we had none and with Joe Driscoll on the rampage any new test equipment for Richey's Lab was out of the question. Driscoll was even disposing of test equipment, something they would later regret.

The ATS-6 was using a brand new method of delivering TV signals, FM/FM. That meant there was a wide bandwidth of frequency modulated TV with 4 discrete aural (audio) sub-carriers. Nothing like this had been created previously outside of Bell Labs and there was a giant learning curve involved. The ATS-6 service was to be unfortunately brief with coverage beams focused on two portions of the United States at different times of day; the Rocky Mountain west and the Appalachian mountains in the east. HUD was insisting the 'tests' using ATS-6 be tied to schools and the educational world. Learning tools (films of use to schools) were transmitted between 9.10 AM and 5.25PM five days a week eastern time. The satellite, which would eventually be moved around the world to sit over the equator above the Maldive Islands south of India in May 1975, was a one-shot affair.

As this was a brand new exercise, essentially a giant learning curve, there was many mistakes. The major mistake was a miscalculation by some engineers at Hewlett Packard who were under HUD contract to supply the down link receivers. Sixty sites scattered throughout the Rockies and Appalachia were outfitted with Prodelin 4.2m (13.75 foot) diameter dishes, using 'feeds' designed at Stanford by one Robert Taggart (remember that name). HP created 'low noise amplifiers' to install at the dish and feed, and then developed a receiver to go inside at the end of the coaxial line connecting the dish to the indoor equipment. HUD paid for it all and a cable TV system in Elko, Nevada, another in Wallace, Idaho somehow lucked out to be on the equipment distribution list. Educational TV stations in 8 western states received equipment as well and a cable system serving Reno, Nevada was fed ATS-6 programming from a Las Vegas site of educational TV station KLVX through terrestrial microwave links.

Oklahoma was neither in the 'western footprint' intended for the Rockies nor the Appalachia footprint bore sighted to the eastern states. What that meant was even as Steve Richey struggled to create a working receiver, we were always 'down on the side' of the maximum signal beam.

CATJ for August 1974 explained how the system worked to the cable industry. CATA had made a formal request from the Cable Television Bureau to grant 'blanket permission' to any and all cable systems to receive and distribute the HUD programming without the usual multiple-months to year long wait for formal FCC action. The Bureau did a sideways maneuver, issued a statement saying they could see nothing wrong with cable systems doing just this but stopped short of the 'blanket approval' CATA requested. OK, so the way was clear for cable systems to experiment.

There was interest - but not much. First of all, nobody had equipment for sale for the service; not even HP. A 4.2 meter Prodelin dish would set the cable system back close to $15,000 and for a few hours per day of 'educational films' with a termination date in May (1975) it was not appealing. HP answered queries by revealing they had built only 60 receivers for the 60 approved sites, and even at their $3,000 each cost, they have none available for sale nor HUD approval to do so.

An update in the September CATJ nailed the lid on the ATS-6 interest. It reported:

"It seems when the uplink portion of the (satellite) package was designed, a very unusual amount and type of video pre-emphasis was

built in. The receivers built by HP naturally have de-emphasis built in to compensate for the pre-emphasis at the uplink. Unfortunately, the de-emphasis networks built into the ground receivers were constructed using lower cost 10 and 20% value resistors and capacitors, which is another way of saying, 'they are not very precise'. The end result at receiving sites is a video/sync stability problem. The (Prodelin) antenna and the HP antenna mounted preamplifier are producing plenty of signal from ATS-6 at virtually all sites but the end result - delivering quality pictures to schools, is not working. The video is distorted. We (CATJ) are told this can be fixed by calling back into HP all of the receivers and making modifications. We'll report when this is done."

CATJ never so reported because it was never done. In effect, a slip at HP selecting the wrong parts for a normally minor portion of a receiver crashed the program. It was the perfect example of what happens in the high tech world when someone like Joe Driscoll decides to cut corners to save a few pennies on parts without adequate engineering advice.

Richey and I decided that $15,000 for a Prodelin 4.2m dish was not in our budget. So I took a home-style 6 foot (1.8 meter) UHF television dish manufactured by Channel Master and resurfaced the reflector portion with wire screening purchased at a local hardware store for $10. Then using as a guide information published in an amateur radio publication, created a 'feed' for the dish. We simply laid the dish on a tilted piece of pipe and using a borrowed spectrum analyzer 'found' the satellite signal.

The next challenge was the antenna mounted preamplifier. HP was using something called a 'low noise bipolar transistor' for their HUD units. I returned to Siliconix (CADCO was still buying their products for the always well selling IPA line of equipment that launched this craziness in 1971) and they found me a handful of experimental transistors thought to be good at the microwave frequency region of ATS-6; 2,600 MHz. Richey went to work and in a week he had just what we needed mounted for weather protection in an empty coffee can that doubled as our feed. Our total antenna system could be duplicated (including the Channel Master UHF TV antenna which served as the frame, the amplifier and the 'coffee can feed') for well under $100. Prodelin's $15,000 dish plus HP's $700 antenna feed and amplifier were definitely not on the cutting edge of technology. Alas, there was no market after all and Richey soon lost interest because, as he pointed out, "I saw all of those films in school a few years ago back in Arizona." The sanitized film story of "How Penguins survive the Antarctic winter"

did have limited appeal. But for Richey and I, it was a brilliant opportunity to discover what could be done for very little money if you put your mind to it - even in the satellite field. This experience and knowledge would serve us well in just a few short years when HBO became the first satellite user to show Angie Dickinson's 'bare breasts' and 'raw sex' rather than penguins. Now that would sell!

Being officially 'on leave' from CADCO allowed me the opportunity to travel with Kyle Moore to visit disgruntled cable operators throughout the middle USA. One of the most memorable, with Kyle at the controls of his private four seater plane, took us to Lexington, Kentucky to attend the annual meeting of the Kentucky (state) Cable TV Association and a co-sited hastily called 'Copyright Summit' presided over by a southern gentleman of the first order, William (Bill) Risden of Cumberland. I hauled along some TV reception equipment (battery operated TV sets being quite new at the time) and stuck a small antenna on the inside of the Plexiglas window, sprawled out in the back two seats and settled in for the several hour trip, amusing myself by seeing how far away I could 'reach' with the airborne TV set. RCA had done something similar in 1940 by flying a plane loaded with equipment from New York City to circle over Washington, DC picking up the New York City RCA channel while media reporters were able to watch and later report about the event; and the California pioneer TV station operated by Don Lee Broadcasting (Los Angeles) had loaded a crowd of reporters on board a modified forerunner of the DC3 for a jaunt above southern California in 1938 to show off its' TV station's new programming.

We had been airborne only a few minutes from Oklahoma City's Wiley Post Field when I stumbled across the TV signal from a station in Lexington, still several hours (and 600 miles) away. "Holy Cow!" said I to Kyle. "What's our altitude?" It was barely 2,000 feet but we were climbing rapidly. A few minutes later after the signal faded out, Kyle advised we had just passed 4,000 feet.

"Can you drop back down to 2,000?" I asked. His answer was something about, "We use a lot more fuel down low," but he obliged. Sure enough, with Kyle ticking off our elevation and the plane pointed at Lexington as he said "2,300 feet" the signal popped back in. I urged him to drop "until the signal fades out" which happened around 1,500 feet where upon we returned to 2,000.

"Perhaps you can wait until we arrive at Lexington to watch this particular channel," he chided, anxious to get on with his filed flight plan and a cruising altitude more fuel efficient. I was no novice in

'atmospheric ducting', a strange occurrence in the air above us when two significantly different air masses collide or form a boundary. There are rivers of warm and cold air above us and between a warm air river and the 'normal' air temperature a 'boundary forms." The boundary is known as a 'duct' which acts as if it were a very long (sometimes thousands of miles long - when supported by a suitable river of air flow) 'conduit' or pipe. The boundary cannot be seen although you would notice an abrupt outside air temperature change if you were watching an airplane's air temperature thermometer while ascending or descending through the transparent 'river'. The duct captured the distant TV signal and carried it along as if it were a leaf riding on a fast moving stream. I had just happened to be tuned to a station channel caught in the duct when Kyle was climbing out of Wiley Post.

The Kentucky Cable TV Association was meeting to hear Kyle's pitch for CATA and then vote on whether as a state organized group they would support CATA. Concurrently, a 'Copyright Summit' had been called built around Kyle, NCTA President David Foster and a brace of ex-FCC and now private practice attorneys were on hand. Up to this point individual cable operators had joined CATA, but never an entire state as a block. Kentucky had a couple of hundred CATV systems operating, half of which the FCC did not know existed. Kentucky, West Virginia and Tennessee have many-many 'hollows' (as in 'hollers' made famous by Patsy Kline) or valley isolated towns reachable only over dirt and gravel roads. TV signals couldn't get into most of the 'hollers' either. So people like Bill Turner climbed hills and mountains and installed antennas and ran cable. We had been on the ground maybe 30 minutes when a shy man, dressed in well-worn but clean blue-jeans with red suspenders tugged on my short sleeve.

"You the Coop guy?" he asked. I acknowledged I was.

"Got something here ta show yah" he offered. Under his arm, something rolled up in a well-used but clean burlap sack. "Got someplace ta go?" I understood he didn't want to unwrap the burlap in front of all of the people clustered around Kyle.

Now, we are in Kentucky where if moonshine was not invented here, they perfected it. What I expected to see when we reached my motel room was a bottle of 'special stuff' he might have prepared just for Kyle and I. Wrong.

"Made this'en m'self" he said slowly while carefully unwinding the burlap. There on my bed was one of the nicest (I appreciate it is difficult to explain 'nice' to a non-technical audience) cable TV tube style amplifiers I had ever seen. Ben Tongue would have salivated (as father

of the original Blonder-Tongue tube design cable amplifiers).

"Don't cotton to thet solid state stuf" he explained. "A man kin werk with tubes, them transistor thingys are the work of the devil." I agreed there was some 'black magic' involved in transistors, thinking of how Joe Driscoll found Steve Richey so frustrating. He proceeded to explain every solder connection, resistor, and capacitor to me over a 30 minute span. I had grown up on tubes myself and still felt very comfortable around them. It was difficult to argue against the 'life-time' guarantee of a transistor of course but the latest 10,000 hour (417 day) long-life tubes were a huge step forward from the first (1,000 hour - 42 day) tubes Ben Tongue used in 1950 for his apartment house amplifiers.

"Now, I want ya ta tell me how many of these you and Mr. Kyle would like," he continued. Was this guy an equipment salesman dressed up like a hillbilly? I stammered for an answer and he could see I was not sure what to say.

"A gift!" he said, with feeling. "You and Mr. Kyle are savin us little guys and I want to do somethin ta show ya we 'preciate it."

I smiled and shook his hand with some enthusiasm. We rewrapped his home built amplifier and he insisted I keep it to show to Kyle. More than ten years later I would be living in the Turks & Caicos Islands with my family and that amplifier would save me from a disastrous experience. But, another story.

If Kyle did not feel like 'the king of the mountain' when we set down in Lexington, he certainly did when we left. To a man, the Kentucky cable operators voted loudly and enthusiastically for their state association to 'sever all relations with NCTA' and support CATA. I was never certain what relations they had to sever but a few of the old timers there did make a point of telling me they were going home and cancelling their NCTA membership. I also found out how important CATJ had become to the cable industry having located myself in a corner table of the meeting room ostensibly to take notes of the meeting progress but in fact facing a line that never seemed to get smaller of cable operators with comments about CATJ or questions - lots of questions. I did take notes but mostly in response to questions being asked. I collected enough questions to support the next year's CATJ feature articles - one good question lead to my answer which lead to someone suggesting, "Can you put that in 'The Journal' please so I can study it?"

Another thing driven home to me was the importance of having Steve Richey's test equipment projects in CATJ. Several operators

brought along finished and partially finished 'marker generators' and other 'as published in CATJ' pieces of equipment. Most just wanted me to inspect their workmanship or as one fellow from Tennessee said, "Bless it, please, so it works when I am finished!" I kept Kyle up most of the second night we were there unloading on him virtually every conversation I had over the preceding 36 hours. He was feeling no pain himself after receiving his own 'burlap sack wrapped' present - one of Kentucky's finest bottled products.

The hit of the 'Copyright Summit' was a man named Sol Schildhause, the original FCC man placed in charge of cable TV regulation in 1970. Sol had left the commission and entered private practice with cracker-jack California cable attorney Harold Farrow who was making a name for himself nationally by battling telephone and power companies for cable's 'right' to be on utility poles with their cables. Sol's extemporaneous talk was audio taped (these were the days before consumer camcorders!) by CATA and his every word appeared in text (all 16 pages in print) for CATJ in November. Sol was so precise with his arguments against cable TV agreeing to paying copyright, and used such a variety of 'what-if' examples that the November issue became a classic of our journalistic style. Where others (read TVC) merely caught his highlights and headlined his often outrageous words out of context to catch reader attention, we missed not a syllable. About the small town cable operators, he won applause with the following:

"Generally, small cable systems are in out of the way places and they provide a fill-in service. They are barely keeping their heads above water financially, and have no noticeable impact upon broadcasters except in a positive way. As a matter of national policy, actually they should be supported and subsidized, and not be made to pay because they basically fill in the deficiencies of the Federal Government's own artificially contrived television allocations plan that (in the end) does not bring television to everybody (as it had been intended to do when first announced in 1952). And people who help fill in 'holes' ought to get some kind of break."

At the opposite end of that suggestion was the response of FCC Chairman Richard E. Wiley while appearing in a forum gathered by the NCTA for state and regional CATV association presidents. A cable operator representing the Iowa CATV Association pleaded with the Commission chairman:

"Please, when you make all of those rules and regulations, remember there are small systems like mine with eight hundred subscribers."

Wiley's answer: "Sorry fella, that's the price you pay to be in business."

CADCO was now in serious trouble. Driscoll had left the handling of promotion to me, even as I was 'on leave', and we created some healthy discounted packages including Tony Bickel antennas and my original IPA design amplifiers for 'cash with order'. Antennas and my tower mounted amplifiers could be produced along side the daily more complicated Sulphur products, almost a 'tiny company' residing inside of a larger one. The large one built the big stuff and worried about getting it out the door while the four or five people on staff handling the established smaller products kept the shipping department busy.

The firm obviously needed something which took as little effort as the antennas and IPA amplifiers to produce, which carried a good profit margin, and for which there was little or no competition. Bill Smith found the answer.

Buried deeply in the new FCC rules was a requirement many had missed. The FCC's bright young attorneys who created the new rules had decided that cable TV was the perfect medium to 'warn' people at home when something was threatening, such as a tornado. Nobody at the FCC had the slightest idea *how* this might be accomplished but they adopted the 'Civil Emergency Alert System' (CEAS) rule anyhow.

What the Commission was demanding was that cable create an emergency 'transmitter' for each of the cable channels which could, on demand, 'break into' the TV programming on any (and all - simultaneously) channels with whatever the 'emergency alert message' might contain.

Bill Smith by now had endeared himself to Joe Driscoll and when he presented the product concept to Joe, he highlighted the pitch with the good news:

"The US Government (Office of Emergency Preparedness) has agreed to pay 50% of the cost of this product which means cable operators can buy it from us for the remaining 50%. Moreover, a clever cable operator will be able to 'sell' the local community on picking up the second 50% on the basis of placing the 'microphone' where the emergency messages will originate in the mayor's office or at the police station."

Driscoll loved it. More than 4,000 cable systems, Smith was guessing the CEAS would go out the door for around $3,000 each - $12,000,000 in sales! But they needed Richey's help. I was approached as an intermediary. My first reaction came from my CATA roots.

"Something *else* the federal government is mandating for cable - another expense, probably worthless in a real emergency!" I was only partially right.

Richey had just finished for CATJ a build-it-yourself article for something called a 'marker generator' (July 1974 CATJ). In essence, the 'Mark-A-Channel' was 75% of a CEAS. Mark-A-Channel was already selling through CATJ as a $175 kit, or $300 wired and tested ready to use. This was a brilliant package, quickly duplicated by high priced test equipment firms and offered typically for $995 and up.

The 25% not there for CEAS would become the task of Roger Smith, an almost-out-the door engineering assistant first hired by Richey and then passed on to the production floor for equipment testing. Roger was into transistors and clandestine products (such as telephone taps and other grey market stuff) long before it was fashionable to be a 'computer geek'. Alas, his mind wandered and he had trouble focusing on the job on the bench before him which made him a difficult employee. I suggested to Smith that Roger take Steve's Mark-A-Channel and rebox it with the missing circuits required for CEAS.

Roger's strong suit was repackaging circuits and CADCO, to little of the deserved acclaim, hit the market in the September 1974 CATJ with the first reasonably priced, working, CEAS. Smith's advertisement hammered home the 50% federal matching funds and the possibility that the cable town would pay the other 50%. CADCO's phone lines exploded. Richey sold lots of his Mark-A-Channel kits, at least for a short while, to CADCO until Roger worked out how CADCO could do the same thing for less than Richey's modestly priced $175 kit price. Some of those clever guys in Kentucky were already explaining to me - and asking for my verification - that the Mark-A-Channel kits they had ordered from CATJ could, in fact, be 'modified' for CEAS use.

26 years down the road (2000), CEAS was still in the CADCO catalog and Bill Smith was approaching retirement from the firm. CEAS may not have single handedly saved his job but it certainly did go a long ways towards allowing CADCO to get through the 'stink of Sulphur'.

CATA's strongest field argument was the proposed enactment of 'copyright for cable'. Although the US Supreme Court had ruled the Copyright Law of the Land (a 1909 law - admittedly quite old, even before radio broadcasting was launched in 1920 at KDKA) had to come down on the side of cable, there were forces at work at the NCTA to encourage Congress to adopt a new, cable-must-pay amendment to the 1909 law. CATA was arguing that in exchange for the 'privilege' of paying copyright, the 'sanction to produce cable's own program-

ming was not a fair trade'.

Of course as pointed out, this was before HBO launched the first nation-wide (satellite) pay-movie service in late 1975. TelePrompTer (the firm that originally created the machine of the same name so on-air talent could 'read' their scripts with the illusion they were speaking without assistance) was by now one of the largest MSOs (multiple [cable] system operator). TPT had been touring the United States with a monstrous satellite dish (11 meters) housed on a 40 foot long trailer, appearing at cable trade shows to 'demonstrate' the feasibility of cable evolving into a satellite fed format. The TV pictures were impressive, the $150,000 price tag for such an installation (less the trailer) at a cable headend was not.

Sol Schildhause, the original FCC head of the Cable Television Bureau and by 1974 in private practice defending cable systems (what better guy to hire if you were in trouble with the Commission!) was quoted in CATJ for August (1974) while addressing the New England Cable Television Convention. He said:

"If there has to be copyright, this (pending) bill is probably not the right bill. I'm very uneasy about the opportunities built into this bill for bushwhacking and if I were a system owner, I'd be asking, 'who the hell got me into this situation?'"

The answer was a small, minority in number, group of NCTA Board members who shared a private vision of what cable 'would one day become'. It was a difficult concept for them to explain without being shouted down in an open forum. They believed that if cable was paying copyright, the long list of problems created by telecasters would go away. "If we pay them for their signals, if they collect money from us for delivering their programming to subscriber homes, it changes the entire complexion of our status - before the telecasters, before the FCC, before Congress."

These were people who were sick and tired of being called 'pirates' and accused of "stealing TV programming out of the ether to resell to folks who happened to live where direct reception from a rooftop aerial was impossible or difficult."

One of the most anti-cable firms in the TV world began advertising in CATJ in September 1974. '(The) Winegard Company' of Burlington, Iowa had spearheaded a public relations drive against cable in the 60s, calling cable everything but nice. Winegard had watched in dismay as their sales of fringe area, complex (and expensive) rooftop aerials plummeted wherever cable TV was installed. A Winegard rooftop aerial in Gridley, Kansas cost as much as $400 installed; partly because of the

50 to 80 foot tower or mast it had to attach to. Winegard had encouraged other major rooftop aerial manufacturers (Channel Master, Taco, JFD and more) to form an anti-cable coalition. They all put dollars into a fund and began advertising in major magazines and even on television attempting to make cable look like bad guys and rooftop aerials look like stairways to heaven. In the period this happened, cable connection fees hovered between $100 and $200 so for most people in most towns, the connection to cable was a less immediate expenditure than a new or replacement rooftop antenna. Plus, the cable service almost always brought in more channels, with clearer pictures, than the rooftop aerial.

But there was the monthly fee for cable. While it may have been 'only' $5 a month for some systems (and up to $15 for very modern, complex systems offering more than 12 channels of TV reception), it was 'something', none the less. Winegard and compatriots captured the monthly fee point and made big headlines about, "never having to pay month after month using a new rooftop aerial." Cable retaliated by offering people a 'free initial cable connection' if they 'traded in' their rooftop aerial. In fact it cost the cable company more to take down and remove the rooftop aerial than it could be resold for. But if the family agreed to have the unsightly 40 to 80 foot monster removed from their premise, cable knew one thing for certain: The viewers would stay on cable because to return to their antenna would require another $200 to $400 expenditure to start anew with another antenna.

Winegard and the consortium of antenna manufacturers tried to get a court decision banning this 'antenna trade-in policy' and were modestly successful in convincing a few towns the cable TV franchise (license from the community) should specify that antennas could not be taken in as 'trade ins' by the cable company. Modesto, California was one such town where even today, almost 40 years after cable started there, bent, broken, dangerous arrays of corroded aluminum still sway in the breeze on 40 foot poles stuck atop cedar shake roofs.

Winegard's CATJ advertising rose eyebrows. "Aren't these the guys who tried to put us out of business a few years back?" asked the irate cable operators on the telephone. "Is CATA so desperate for advertising that you will 'allow them' into 'our magazine'?"

The Winegard advertisement, prominent on page 1, was the perfect example of John Winegard cleverness:

"The Winegard CableMate TV signal selector helps switch CATV prospects into subscribers."

What it did was very simple. After the direct attack at cable opera-

tors 'confiscating' rooftop aerials in the guise of a 'trade-in' for the cable installation, Winegard saw a less confrontational approach. Their 'Switchmate' allowed subscribers to choose between cable and their antenna and the text in their advertisement continued: "Winegard introduces an exclusive new switch with a unique circuitry designed to help turn CATV prospects into CATV subscribers. We call it the Cablemate TV signal selector. And that is exactly what it does. Helps your customers select the signal he wants. Cable when he wants cable, Antenna when he wants Antenna." You should note that antenna was capitalized (Antenna). Winegard did this, not me. Cablemate was modestly successful in the marketplace and best of all, for Winegard, people would now retain their rooftop aerial for at least the time being.

Some cable systems were going to great lengths to make channels available that no reasonable rooftop antenna could provide. Networks of microwave relay had been built from the late 1950s to carry 'distant' channels far away from their original transmitters (for example, stations KTLA, KHJ, KTTV and KCOP from Los Angeles were approved for microwave interconnection as far east as Kimball, Sydney, and Alliance, Nebraska in mid 1974). And where no microwave networks existed, cable firms were innovative. The July 1974 CATJ described how large (up to 40 foot diameter) 'parabolic antennas' could be built for hundreds (not the thousands commercial folks wanted) of dollars using supplies commonly available from the local lumber yard (aluminum angle or redwood for the support structure, 'chicken wire' or window screening for the reflective surface). CATJ for September 1974 included a letter and two photographs from Bill McVay of Coastal Cable Company in North Myrtle Beach, South Carolina. Using the July CATJ instruction, McVay and workers had built a 24 foot parabolic antenna to attempt to receive channel 36 over a 150 mile transmitter-to-North Myrtle Beach path. The much desired channel 36 was 'independent', meaning it was carrying programming largely not subject to FCC mandated 'non-duplication protection'. Photos published with the letter depict the monster antenna at ground level and then being lifted by a winch to the 105 foot level (above ground) for mounting. As McVay wrote, "We are shooting for 70/90/70 reception, which I define as 70% of the people (watching) will find the reception 90% acceptable 70 percent of the time." Two men standing on (or holding on for dear life) the antenna as it is raised to the 105 foot elevation mounting point portrayed a modest amount of nervousness by riding the antenna upward. The cable system would 'get by' with the massive antenna until a planned microwave network was

installed, or the antenna came tumbling down from an Atlantic Coast storm - which ever happened first! By September 1975 U.S. Tower Company (Afton, Oklahoma) had turned the CATJ 24 foot UHF parabolic into a commercial product. Their September advertising reported, "Recently installed 24 foot dishes: for Jackson (Tn), Hartford City (Ind), McMinnville (Tn), Harriman, (Tn), Russel Point (Oh) and Oakridge (Tn)." It would be no surprise that Tony Bickel, ex-CADCO, had joined U.S. Tower as a designer of complicated antennas. Once again, Joe Driscoll allowed a good man to slip through his fingers because the man (Bickel) didn't 'act' the way Driscoll thought a mature adult should act.

Of course there was some humor. The October 7th edition of Television Digest reported on a psychiatric study of the way people adjusted their color television sets for 'comfortable viewing'. The report found:

"Too much red? The viewer is apt to be over sexed, aggressive, (a) confident personality.

"Too much yellow? Trusting and optimistic.

" Too much blue? Lazy, easygoing, content.

"The blues are too dark? Shy, weak people.

"Blues too purple? Having sex problems, possibly homosexual although purple is also favored by pregnant women and those with handicaps".

CATJ warned, "Technicians going into a home to 'check the cable' and finding the lady of the house wrapped up in a midday soap (opera) with lots of reds showing had better be prepared for the worst (with the sub warning for employers: 'Three hour color adjustment service calls are definitely suspect!')."

January 1975. Cable systems were originally supposed to be doing 'preliminary system measurements in compliance with FCC rules' by this date. But there had been delays mandated by a lack of agreement as to how the measurements should be made, by whom, and where. For the first time, my true identity as 'Editor in Chief' for the magazine appeared on the masthead. Nothing else said - just a change from 'Technical Advisor'. The CADCO period of my life was now passed and Joe Driscoll had Bill Smith working overtime to close down the Oklahoma City facility in favor of a new location in a Dallas suburb. Sulphur and the general slow down in new cable starts had indeed buried my little company and Driscoll was doing his utmost to salvage his several million dollar investment. For the record, I left with nothing other than the shirt on my back and a home work shop containing a

modest collection of prototype pieces I had created. It was, I admit, a sad day when CADCO sent their van out to my home to dismantle the dozens of pieces of production CADCO gear that had collected there over the years. I blamed no one in particular for my situation, saw the change as a new opportunity, and was much relieved that Steve Richey now had enough business through CATJ articles (and some modest advertising) to remain in Oklahoma where he would be available for the birth of the satellite TV industry. Of course neither he nor I knew it was coming but indeed it was.

Prelude to satellite

Nobody ever adequately explained why, but the nation's best known cable system operator, TelePrompTer (TPT), had purchased a transportable receive-only satellite earth station (TVRO for television - receive only, which meant it could not transmit) from Scientific Atlanta (1973) and debuted it as a show-off piece at the Anaheim, California NCTA convention. TPT believed the future of Cable TV was somehow embedded in the new satellite technology but they failed to do more then demonstrate its technical capabilities with their 11 meter trailer mounted rig. In 1973 and through most of 1974, the only satellite in the sky from which an 11 meter size dish could capture signals was ANIK 1, the first of a long series of Canadian 'birds'. And although Anaheim (and other USA places where TPT set it up for show-off) were far below the Canadian border, the reception was brilliant and people who saw it (after standing in line for up to an hour to be admitted, briefly, to the viewing tent) were suitably impressed.

1973 (and 1974) was long before laws existed addressing whether or not a USA cable system might actually receive and carry on cable Canadian TV channels, but in the 1974 - 1975 time frame Western Union and RCA both were promising to launch their own 'USA domestic' satellites, on which it was assumed there might be USA origin programming channels. TPT eventually tired of the effort, apparently because the clock was ticking and nobody had stepped forward to be the first 'satellite TV programmer for cable', and they sold the 11 meter dish system to the Canadian Government for a reported $110,000; a bargain I might add, at the time. And it was eventually installed at Radisson, Quebec, for the most basic of reasons. Radisson was where

a 119 million dollar ('James Bay') project was underway. The workers there, mostly French speaking, had 'rioted' and created an estimated $4 million in damage to the project. The Canadian government decided the workers were 'bored' and if they could install TV to the James Bay Project living quarters, the workers would become 'pacified'. It apparently worked well enough that the James Bay project was finished with no more riots. Decades later the same satellite TV delivery system would start riots on its own in the Middle East.

The American cable industry was headed for satellite although very few people realized just how close it actually was: (9 PM EDST) September 30, 1975. But CATA and mouthpiece CATJ had more immediate battles to fight.

Congressman George Danielson of California was planning to hold hearings on the Senate and House pending legislation that would bring cable TV under the copyright umbrella. He was not alone; virtually every investigatory committee in the House and Senate were considering hearings, largely to answer cable TV viewer complaints raised in letters and telephone calls. CATA members had discovered the power of enlisting their own subscribers in the fight to defeat copyright. Jim Davis of cable supplier DAVCO (Batesville, Arkansas) created a booklet ('Community Antenna: The Injustice of a Distorted Image') which he wallpapered Arkansas with by taking out advertising in virtually every newspaper in the state. The booklet became a model for others such as Charles Erickson of Parkersburg, West Virginia. Charlie, as he was known affectionately by fellow cable operators, had pioneered (Durfee's TV Cable Company) cable TV in 1951 in his state and had been a loyal if questioning member of the NCTA. He, too, took out and paid for advertisements in West Virginia newspapers and even bought radio 'time' to encourage cable TV viewers to fight 'this insidious viewing tax'. Others followed their example, raising the level of public awareness that a new Washington created issue was threatening television reception.

Congressional offices were soon awash in letters of question, complaint and indignation from cable viewers across the country. The NCTA was clearly now on the defensive. And Congressmen and Senators retreated to their favorite hiding spot behind responses of assurance, "We are investigating your concerns and will be holding hearings shortly on this matter."

Pressure, on politicians, hopefully would turn the tide away from the well-heeled and well-oiled NCTA effort to get cable TV into the copyright world. It was a 'David and Goliath' battle.

As this was developing during December (1974) and January, I suggested to Kyle that we put CATJ resources to work as well. Stacked up and occupying every available square inch of shelf, bench and floor space in my basement workshop at home were copies of more than a dozen publications dealing with TV reception from 1946 through that present year. There were hundreds, nay, thousands of magazines which somehow I had found time to scan-read and mark articles, news reports and technical developments which had some kind of impact on the development of cable TV through 1974.

"I propose we devote every page of CATJ to a true history of cable, starting with the very first systems installed in Oregon (1948) and Pennsylvania (1950). The evidence I have found is very clear to me - there has been a co-ordinated, directed effort to squash cable TV from the mid 50s onward. At the same time the television broadcasters and networks have grown into multi-billion dollar businesses. If we show readers how one-sided this entire history has been, perhaps they will somehow take a different view of whether copyright for cable is necessary or even makes any sense."

The target date would be the March 1975 issue. Kyle and the CATA Board believed that if we printed an extra 'few thousand' of the history, and then made dead-certain every member of Congress received the report, we might cause some Congressmen and Senators to rethink the rationale behind cable paying copyright.

I broke the history into segments dealing initially with the mishandling of cable by the FCC. First I had to locate the facts from the thousands of magazines occupying my basement, then put them into timeline sequence and weave a coherent 'story' of what all of this meant for the development of cable. I was barely into the first portion when two things became obvious:

1) If you took all of the FCC decisions that affected cable from the first court case ('The United States of America [FCC] versus Carter Mountain'; see "Television: The technology that changed our lives" by this author), placed them in a timeline sequence and read them through at one sitting, the 'pattern' of anti-cable bias jumped out and knocked you over.

2) If you went back to 1946 when commercial TV broadcasting resumed after a short lived false start just ahead of WW2, and came forward in time, selecting all of the FCC decisions that ultimately proved to be very wrong, there was another pattern. For example, the FCC erred badly in 1946 by not assigning sufficient channels for television broadcasting. In 1948, it 'froze' (stopped) all new station

construction while it attempted to straighten out a terrible mess that was creating interference on TV screens from California to Boston. It took them four years to unkink that one. Or in 1952, the FCC decided that a CBS color TV transmission system would become the 'national standard'. That system relied on a huge whirling (rotating) plastic disk placed in front of the black and white TV screen to 'simulate color' pictures. The whirling disk had to be more than twice the diameter of the screen which meant a 20 inch screen would have a 40+ inch wide (and 40" tall!) cabinet to house the huge disk. To turn the disk, a motor. The bigger the screen the larger the motor required. In fact, a 30" screen (with a 66" disk) demonstrated by television manufacturer DuMont required a motor of such heft that when it was turned on before a FCC hearing, the motor's power drain blew fuses throughout the FCC, darkening the hearing room! The message here was clear - large motors inside of TV cabinets in every home in America was a ludicrous approach. Alas, the FCC still voted in favor of the CBS motorized system - something they would have great cause to regret within six months.

And these were but two of dozens of similar examples (that included FCC Commissioners receiving mink coats in return for voting in favor of a specific applicant for a TV channel). The evidence, when read in sequence, pointed sharply to an incompetent (or worse) federal agency, the FCC.

I outlined the material to an emergency meeting of the CATA board.

"When read in sequence it will take maybe 90 minutes to get through the March issue. By compressing time and eliminating events that had no bearing on our history, what is left is damning and almost impossible for the FCC to defend. They have been bad, stupid boys and not necessarily in that order."

I was asking for their permission to expand the report into two consecutive issues, and I was also asking CATA to pick up the costs of creating extra-fat issues as well as the several thousand extra copies which we would hand deliver through our Washington staff to Senate and House offices.

Kyle suggested we do more than simply 'deliver' the issues. "Let's see how many CATA members we can get to Washington to take copies into the offices of their own Senators and Congressman. We need to have a larger one-on-one physical presence there; this is a reason to do that."

The March issue had a startling red cover with three major excerpts from the reports found inside the covers. In house, March was known

as the 'anti-FCC issue' while the second part, April, would concentrate on how cable TV had been a major salvation for smoothing over the mistakes of the FCC (citing examples such as Welch, West Virginia where because of mountains, folks would never have TV without cable operator Bill Turner).

The FCC's channel allocations error of 1946 was self explanatory. Using incorrect data, relying on 'in-house expertise', the FCC of the 1945 - 1946 era was assigning new TV channels to cities without sufficient mileage separation between stations. The result was interference in viewing homes. For example: Boston, New York City, Schenectady, Washington (DC), Richmond (Virginia) and Lancaster (Pennsylvania) had all been assigned use of TV channel 4. In the worst case, there was barely 100 miles between stations on channel 4. Folks who lived between 30 miles and 70 miles from one channel 4 also lived between 70 miles and 30 miles of another channel 4. Think about it - it makes sense.

By 1948, TV viewers were routinely watching TV channels at distances of 250 - 300 miles and more. Maybe it was not great TV but the signals easily reached out that far. So, for the viewers within 30 miles of one channel 4 but 70 miles of another there was interference (which became progressively worse when they were 40 miles from one, 60 from another or heaven forbid - 50 miles from each!). The FCC erred by badly underestimating how far TV signals would travel, relying on 1936 data which mislead them into thinking distance travelled would be confined to something they called 'line of sight' (LOS).

The 1945 - 1974 magazines I had collected had been a chore. People seldom save magazines, even in a technical field, for very long and I had begun in 1973 to collect them out of innate curiosity. As a youth back in 1951, I had 'discovered' *Broadcasting* (Telecasting) Magazine, a trade weekly published in Washington (DC). At 13 years of age, I may have been one of (if not 'the') youngest subscribers. Unfortunately in growing up I had disposed of my copies in that period and recreating the pile of 52 issues per year covering 1946 to 1974 was some task. Others such as *Radio Craft* (later *Radio Electronics*), *Radio News* (later *Radio & TV News*) and a host of lesser known titles such as *'Televisor'* became a passion. By March 1974 I was a walking encyclopedia of 'TV industry trivia' and spent eight to ten hours each day for weeks pouring over old, yellowed, page-turn magazines searching for 'proof' of the FCC's bias against cable. I found plenty.

By far and away the best resource was *'Television Digest'*, a trade weekly newsletter published by Al Warren and associates from

Washington. But old copies were difficult if not impossible to locate because Warren had always charged huge bucks (upwards of US$1,500 a year today) for a subscription and thus the number of copies printed was always small. Warren had a 'direct line' into the FCC and was pals with virtually all of the early telecasters. I made a hurried trip to Washington where with their permission I read and read their library copies for as long as they would let me sit there for several days running. Making copies was a no-no but they did not object to my taking notes. After destroying several 'yellow legal pads' and still only into around 1948, I decided to run out and purchase one of the new cassette tape recorders and several boxes of tape. I read the stories into the recorder, consumed a box of batteries doing so, and returned to Oklahoma City to complete the story. In 1992, far ahead of this point in time, my wife Gay and I would spend two days in the same library and with their permission make more than 3,000 page copies of many of the same issues.

CATJ March 1974 laid it on the line. The FCC had flawed so badly with decisions such as introducing UHF-TV that hundreds of millions of dollars had been wasted by telecasters and the consumers. Nobody had ever compiled the data and numbers previously, often from the FCC's own records, to illustrate how a series of stupid bureaucratic mistakes and errors in judgement had directly cost the American consumer so much money. In the case of UHF-TV, the FCC had approved UHF channels in 1953 and promptly began licensing stations to operate on the new 'ultra high' frequencies. Unfortunately, not one single TV set manufactured and for sale could receive UHF channels. So folks such as Zenith introduced 'tuner conversion devices' which allowed a technician to come into the home, take the TV set apart (literally - with parts spread all over the living room floor) and over an hour or two reassemble the TV set so it could now tune in (after a fashion) the new UHF channels. Other manufacturers, such as RCA, took a different approach. They left the existing TV set alone, but brought out a set-top 'UHF Converter' box which when connected to a new UHF antenna on the roof produced reception from the 'ultra high' channels.

It would be twenty years (1974) before the foot dragging FCC finally got around to asking Congress to mandate that every TV set manufactured must have the tuning capability to receive both the original VHF channels as well as the 1953 launched UHF channels.

In that twenty-plus year span, hundreds of UHF stations went on the air - and went off. Dead broke. It was the most evil of catch 22s.

For a UHF station to reach an audience it must somehow create programming. But ABC, CBS, NBC and DuMont (the then four TV networks) would rather skip over a 'market' (Hartford, Connecticut and environs was a 'market') than affiliate with a UHF station. For solid reason. If nobody in Hartford (or almost nobody) was equipped for UHF reception, why tie up a valuable commodity (Milton Berle) on a channel nobody could receive? It made more sense to the networks to 'wait it out' until a new VHF channel came on the air.

So the UHF station was unable to get viewer-desirable programming. Which meant that folks who might otherwise have been inclined to spend $100 (to redo their television set for UHF and a UHF antenna) said, "No thank you."

Without programming that attracted audiences, UHF stations could not sell advertising. Without an audience and no advertising they had no revenue. And without revenue - they went 'dark' (left the air). Between 1953 and 1975, a total of 339 commercial UHF stations were built and went dark. In the same period, 121 came on the air and survived - most of these in 'markets' such as Fresno, California and Peoria, Illinois where by FCC happenstance there were no VHF stations, only UHF; or 'educational' where there was no audience measurement requirement to sell advertising.

CATJ for March 1975 showed with a degree of conservatism that each UHF station that went dark left some quantity of home viewers with a worthless investment; their UHF reception equipment. A series of calculations suggested something in excess of $115,500,000 had been 'lost' (wasted) by home viewers who had been 'early adopters' of UHF reception equipment.

As interesting (" I could not put it down until I had read and reread every page," was a typical response) as March may have been, it left many readers wondering, "Where is this headed?" April would reveal all.

What we had succeeded in doing was to 'educate' the readers with the FCC's own data that as a regulatory agency, they had spent the period 1946 to 1974 committing one colossal blunder after another. To put it very kindly, I was the most hated person at the FCC one can imagine. Had I ventured into 1919 M Street NW the week after the issue hit Washington, I probably would have been skewered before I reached the elevator.

I knew they were angry when an FCC inspector came to visit me.

"About your ham radio license," he began. This guy had driven or flown from Dallas to Oklahoma City to ask me about my ham radio

activity? I doubted that very much. But it was a 'FCC license' and at the time the only one I held. He insisted on going to my home, a 45 minute drive away from the CATJ/CATA offices, to 'inspect' my ham station. I tried to make small talk, he sat button lipped for the trip.

As we neared my home I suggested the 'real reason' he was there. He turned red and his face became contorted, apparently somehow believing I would not figure it out.

"I can't discuss that," he said in a whisper. I had a copy of the March CATJ in my pocket and pulling it out as we entered my driveway tossed it into his lap. He picked it up, and smiled sheepishly. "I've already read it."

"I know that," I responded. "Shall we go in and see my ham station?" I had phoned ahead to wife Susan to warn her of the visit, and asked her to run into a file cabinet and get out both my and her ham radio licenses - and place them on the wall in a prominent location. The regulations in those days said something about 'displaying' the license at all times.

The ham station was quite elaborate but was sharing the basement with my workshop from my CADCO days, and the project then underway - the April issue of CATJ and the thousands of magazines grouped by title and age. With some difficulty a thin person could navigate without knocking over a six foot stack of magazines. Our FCC 'inspector' was not thin, perhaps the result of too many high calorie dinners paid for by TV and radio stations engineers he was visiting as a matter of assignment. But he managed to get to a chair without tumbling a pile of revered old magazines.

At the bottom of the stairs, one turned right and entered fluorescent illuminated 'radio central'. Most of what was there was installed in equipment racks which in turn were blocked from easy view by the stacks of magazines. I explained why magazines ran from floor to ceiling.

"I wondered where you got all of the information," making reference to March CATJ. I had to add a quick story about spending days at Television Digest in Washington, just to make the point that I did not totally rely upon yellowed copies and faded pages from Radio Electronics published in 1948.

"The ham station," he directed. In the corner of the sizeable room, a Japanese transceiver and a 1,000 watt amplifier manufactured by a firm in Ohio. Behind stacks of magazines, more of the same but not nearly as visible.

"Show me your log book," he commanded. Now amateur opera-

tors, licensed by the FCC, had been required to 'log' (write down) every time they transmitted from the day I had first been licensed (back in 1953). The purpose of the log was to be able to refer to the record should any FCC inspectors ever show up. But the 'logging requirement' was now considered unnecessary. I knew this, and so did he.

It happened that above us, out of view but certainly evident when we walked from my Chevrolet station- wagon to the house, were radio towers loaded with large (some would say they were larger than large, as in huge) amateur radio antennas. That was one of the primary reasons why we lived in rural Logan County, 35 miles from Oklahoma City, on 5 acres of land with no neighbors. The tallest tower was 199 feet in height and was in fact the same make and model of tower Kyle Moore used for his 300, 400 and 500 foot cable TV antenna systems. Not many hams had a 199' footer (it was actually 200 feet tall but as the FCC rules required you to place 'safety navigation lights' on anything 200 feet tall and above, I had fudged the height to avoid meeting that requirement - by digging a hole for the bottom or base section that was one foot below terrain level). Nor a half dozen more all over 80 feet in height.

From his brief case a file folder and then a sequence of questions.

"How long have you been licensed?" started the list and virtually every question could have been answered in Dallas from their files. He was in my ham shack to intimidate, not gather information. Unless of course I had been sloppy and he found a violation.

"Can you fire up the rig?" he asked pointing at the Japanese transceiver. I obliged.

"Now the amplifier." Again I did as asked.

"Is this watt meter in line with the amplifier?" It was.

"Find a frequency and key the mike." He meant, find some frequency not in use and speak into the microphone. He had moved closer to the watt meter to be able to read the output power going to the antenna.

I did as instructed, pushed the foot switch to activate the transmitter and said something dumb like, "Hello test."

"Again, longer."

Now this amplifier, an MLA-2500, was rated very conservatively at the amateur power limit of 1,000 watts input. The "2500" part was a dead give away - 2,500 watts rather than 1,000. But they were quite common and hams always alluded to having more transmit power capability than they would 'ever use' simply because if you operated below the full rating of an amplifier (such as 1,000 watts rather than

its' capable 2,500 watts) the equipment lasted longer. It was akin to driving my station wagon at 55 miles per hour rather than the speedometer capable 120.

I spoke longer counting to ten from 1 and then back again.

"Can you speak louder?" he asked. I could but to do so would immediately send the amplifier past the 1,000 watt 'legal limit'. I knew this and he did as well.

He was staring so intently at the Bird watt meter than he did not notice my index finger turning down the output power on the Japanese transceiver. Reduce it and the output from the MLA-2500 would go down as well. I spoke louder and by some bit of good fortunate as I had been flying blind with my index finger, the power stayed within the legal limit.

"OK, so what about the other 'rigs'?" pointing at various additional transceivers. The same exercise repeated and 90 minutes later he was exhausted and so was I. He had found nothing to cite me for, but it had been close. "The tall tower," he started, "can we go look at it?" We went out the sliding glass back doors, past the kids' swimming pool and through a fence into the woods where a clearing had been made for the tower to sit in perhaps 15 cubic yards of concrete.

"I don't recall seeing many of these," he said resting his hand on one of the tubular tower members. "Except of course at cable systems and broadcast stations. Mind if I ask how you managed this?"

The truth was that a man named Maynard 'Stormy' Weathers (I do not make this up) owned a small tower manufacturing company in eastern Oklahoma. Stormy wanted to advertise in CATJ, and being a born Oklahoma horse trader had suggested that he 'trade me' a tower for advertising space. I had cleared it with Kyle and Bunk, and then the tower had arrived and was installed. On top were two very large antennas for the amateur 'ten meter' (28 megahertz) band, sitting inside of a rotation device (antenna rotor) allowing me from inside in my basement to direct or point the antenna 'array' to whatever point on the globe as I wished.

"I got tired of guys on the east coast (meaning places like New England) always beating me out with stronger signals into Europe," I began. "And the guys on the west coast beating me out to stations in the Pacific and Asia. So this is my answer - I can be just as strong in Germany as a ham in Boston or just as strong in Singapore as a ham in Los Angeles with this array."

He was impressed and now confided he was also a 'ham' and from that point on the purpose of his visit was lost as two people with a

common interest exchanged information and funny stories.

I never heard from him nor the FCC again about my 'ham radio station' and if they intended the visit to serve as a subliminal 'warning' about my writing activities, well ... I didn't 'get the message'. The FCC remained 'target number one' for many years at CATJ. And in 1976, I would be back requesting a most unusual form of 'license', one they had previously approved only one time. Nor could I even imagine that within a few short years, this 'ham radio shack' would become one of the best known in all of America following lengthy visits by squads of Walter Cronkite (CBS), NBC and ABC camera crews as well as others from Japan's NHK and the BBC. But that, again, is getting ahead of 'the story'.

The March CATJ did what I had hoped. After thoroughly roasting the FCC with its own miserable record of miscalculation and bad judgement, CATJ ended by reproducing (with permission) a six page article originally appearing in Radio-TV News, March 1951. This feature ("*How TV came to Panther Valley*") described one of the first 'community antenna systems' installed in the world, serving Lansford, Pennsylavnia. At the time it had been written, 100 homes were connected to a 'master antenna' using equipment provided by Jerrold Electronics Corporation and engineering provided by Philco. Five men led by Robert J. Tarlton put $500 each into a 'kitty' and then borrowed $10,000 from a local bank to build the system. Nothing like it had been attempted before. The article was to become the most important document of the first decade of community antenna TV because the writer, E.D. Lucas of Philco, explained in great detail how anyone in a similar situation could do the same thing.

In 1951 and for the next four years there were hundreds of 'similar situation' towns. The FCC had in 1948 stopped granting new TV station permits while they wrestled with 'the interference problem', denying thousands of communities television because they were located on the 'wrong side' of a hill or mountain. Panther Valley was a model to be followed and equipment supplier Jerrold sprang from an obscure builder of consumer TV reception aids to the major player in cable. This article was reproduced in CATJ to acquaint readers with the 'true heritage' of cable TV, the reason people like Bill Turner even existed in towns such as Welch, West Virginia.

April 1975 CATJ

The front cover was controversial before it was the front cover. Jim Davidson of DAVCO was a doodler, a guy with a pencil and blank sheets of paper. His firm was 110% committed to 'the fight' as he had proven and continued to prove by spending large sums of money to 'educate' the TV viewers on cable in Arkansas. One day while sitting in my office he doodled a Neanderthal man walking from left to right with a large wooden club on his shoulder. Jim was not a cartoonist, by any stretch of the imagination. I glanced at what he was doing while we talked and took no real notice. Then he took the pad of paper and laid it on his lap, and wrote something down above the sketch.

"Yea, though I walk through the valley of the shadow of death, I shall fear no evil ..... 'cause I am the meanest, maddest CATV operator in the valley!"

And he handed it to me. I broke out laughing and called for our staff artist, a young lady named Debbie Teel, to come in.

"Debbie, you know Jim," I began. "He's just done this. What can we do with color to liven it up a bit?" She took it, screwed her mouth up in scorn (Debbie was a perfectionist and while more of a technical draftsman than a free hand illustrator, she knew what was acceptable and what was not. This plainly was not. She took it dutifully and disappeared).

When it came back she had some plastic overlays using yellow, red, brown and green. In Jim's original doodle, the guy was naked. Debbie, a God-fearing Baptist, had added some shorts to his torso. Jim looked at the new version and took the drawing back on his lap. First he made the fingers longer than real life, then he changed the

face to subtract maybe 2,000,000 years of evolution of mankind. The guy was now pre-stone age.

"What do you want to do with it?" he asked, handing it back. Debbie was cringing.

"Front cover - April!" said I. But something was missing. The guy was walking all right, but where? Kyle Moore dropped in and I explained it to him. He was not overjoyed with the drawing but liked the message.

Debbie was still there. "How about this?" she asked taking the sketch from Kyle's hands and quickly adding a few lines. We could see she was printing something as well. She flipped the sketch over and now a wooden sign had been added. "Washington, D.C.," it said. "See - he's walking to Washington!"

Now it said it all and even Kyle agreed the message was dead-on and powerful. Ten days later nearly 10,000 copies of it rolled off the presses with the addition of a pre-palm tree and some short chunks of ragged green grass for balance. Like the almost-Joe Namath cover of nearly four years prior, it was one that anyone who spied it was almost drawn by magnetism to pick up and browse.

And if you began to browse, it was, for most, impossible to put down until finished. CATJ was awash in FCC and Congressional statistics that almost nobody believed on first reading. For example, 22.4 million US homes that in 1974 received four or fewer TV stations. Of that number, 9% of all homes (6,100,000 homes) did not receive three channels. Of that, 1.5% of homes or 1,050,000 received no channels. These numbers were after one added (1) direct TV reception with rooftop aerials, (2) cable service reception, (3) translator reception. 25% of the state of Minnesota was beyond reach of any TV station; 50% of Arkansas, 64% of Colorado. Rural states?

Pennsylvania had 22% of the state missing either a CBS, NBC or ABC signal - meaning that in 22% of the state, they received only one or two networks. Even Delaware had 25% of its area missing one or two of the three major networks, barely 100 miles from Washington.

Senators and Congressmen, through their staffs, expressed shock. Nobody had previously gone to the trouble of 'mapping' the USA to illustrate who received television, how much television, and from where. Every state in the nation - even the smaller ones such as New Jersey - had at least some areas with fewer than 3 network services. Moreover, states like Minnesota (25% unreached by any TV) had their 'TV coverage map' change dramatically if one took away the signals of the PBS (educational TV) broadcasters - in the case of Minnesota, ETV

reached 14% of the state which no commercial stations covered. So the maps with and without educational stations counted were even more condemning of the 'job which commercial broadcasters had done' by following the FCC master plan. Clearly, the commercial broadcasters had 'cherry picked' their audiences, leaving vast regions with no home-aerial TV coverage.

The first level of defense from the networks tried to point out that 'all major population centers' had three or more choices of television. Setting aside the lack of truthfulness (or asking "how do you define 'major population center?'"), their rush to counteract CATJ in Congressional offices suited us just fine. CATA retorted:

"Our point precisely. Our members are not in major population centers; they are in Welch, West Virginia and Batesville, Arkansas. Their cable systems do what the broadcasters have not been able to do, provide TV reception for people who do not live in major centers. And our members deserve special recognition for their dedication."

Another April issue attack point was the comparative relationship between a mythical TV viewer in New York City and another in the small town of DeQueen, Arkansas (one of Kyle Moore's cable systems). The new York City viewer and the DeQueen viewer each paid $299.50 for identical new television sets. The NYC family took it home, plugged it in, attached the rabbit ear antenna and tuned in 9 channels (7 VHF, 2 UHF). Meanwhile down in DeQueen, before the viewer could get reception, he had to spend a minimum of $150 for a rooftop antenna, after which he received 1 station 'good' and another with lots of interference. When the weather was 'right' he got four more stations, each with varying amounts of interference. At best his 'extra four channels' were received between May and November; during the winter, even his one 'good' station often faded out.

Over five years, the NYC viewer would average 19 cents a day to own his television set and maintain it. Over the same period of time the DeQueen viewer would go through 1-2/3 outdoor antennas (even those from Winegard did not last forever), and his daily cost for his 1-1/2 channels would be 33 cents. But because of Kyle Moore's cable system, Mr. DeQueen could forget his rooftop antenna, pay $25 to have cable installed and then $4.95 a month for five channels of reception - of the same quality as the man in New York City's nine channels. It worked out over 5 years to 36 cents a day.

Our point? The man in DeQueen paid a 'territorial tax' to have television, even five channels (4 or 45% less than the New York City comparison). And now the FCC, to satisfy the whims of unrelated

third parties, was urging Congress to pass a law increasing the daily fee to be paid by the DeQueen viewer - who would after the copyright tax still only have five channels.

The broadcasters were fond of arguing they provided 'free television' (no monthly subscription charge) as delineated from cable's 'pay television'. Their argument incentive was to make cable look as if it was a form of taxation all by itself.

CATJ studied the amount of money earned by television stations in dozens of markets, and then calculated the amount of money per family this represented as a market total. In Reno, Nevada, for example, every family there (whether they had television or not) 'contributed' $44.46 in 1973 (the last year statistics were available to study) towards the sum of all TV advertising sold in the market. There were 3 channels serving Reno, so the 'charge per channel' was $14.82 per family. In Madison, Wisconsin, the cost per home per year in television advertising was $22.76 or 6 cents per family per day. CATJ argued this 'hidden viewing tax' was being paid whether a family watched television or not and suggested that "free television is not free at all".

Digging in the archives, CATJ found plentiful evidence that the FCC had been sending mixed signals to the infant industry from 1951 onward. It was 1951 that a man in Missouri (J.E. Belknap) requested a microwave license from the FCC to pick up and transport the TV signal from Memphis station WMCT and carry it to Kennett and Poplar Bluff, Missouri; the very first such 'cable TV microwave' concept. There, he proposed, 'to sell monthly service to cable TV operators who, like Robert Tarlton (making direct reference to the Radio-TV News article), would cable the towns for service'. The FCC said no and gave several reasons, each of which it refuted without prompting over the years to 1960.

In 1955, four years later, FCC Chairman Doerfer was appearing before the now-formed but still amateurish NCTA. He told the group:

"Today, cable TV is a 20-million-dollar (per year) industry. Approximately 300 companies are bringing a television service to an estimated 300,000 viewing homes. If this enterprising initiative and spirit did not prevail, today most of these people in blacked out (direct reception) areas would be without (television) reception. This fact alone is a splendid tribute to your ingenuity. Your honors are all the more deserved because you have ventured into uncharted waters still filled with dangerous rocks and reefs. No government agency has given you any guidance nor substantial encouragement, and none is in sight."

Of course that was the FCC head 19 years prior to our 'present

moment in time'. CATJ April went on to trace how the Commission's attitude had evolved coming to the conclusion the change had been gradual but persistent, "by an agency seeking to enlarge its scope of operation, to create a mandate for ever expanding regulatory powers even if there was no basis in law for those excursions."

Jim Davidson was more than a doodler who quite by accident became a magazine-cover cartoonist. He was also a man who reflected the basic human values that seemed to embody virtually every 'mom and pop' era cable pioneer. Suspending his firm's normal trade advertising in CATJ for January 1975, he wrote the following on a full page hoping to motivate others to become 'madder than hell':

"Complacency will be your downfall. If you fail to speak up, your Representatives and Senators will continue to think you want to pay copyright fees. They will continue to think the NCTA position is your position. (Because of the NCTA position) most of these 535 men and women whom we have elected to serve us sincerely believe that community antenna systems owe copyright fees. They are wrong. This is because of the distorted image they have of your business. If you fail to get in touch with your Senators and Representatives, your lack of action will be your downfall."

Senate Bill S.22, introduced by Arkansas Senator McClellan at the start of Congress in 1975, was a rework of his S.1361 which failed in the 1974 Senate. McClellan was as stubborn about 'cable's commitment to pay copyright' as Jim Davidson was stubborn about cable's animosity to pay. The CATJ series of reports, highlighted by the word-for-word presentation by ex-FCC staffer Sol Schildhause in the November 1974 issue, had turned many minds around. An April 28th 'special meeting of the NCTA Board of Directors' following on the heels of the release of CATJ for April allowed a limited number of industry leaders to speak for and against copyright. With hearings on S.22 looming less than ten days away, there were expectations that the NCTA would at least modify their copyright stance.

The NCTA Board obviously had studied Schildhause's detailed dissection of S. 1361 (now S.22) because there was frank discussion that at least touched on all of his warnings. Those in favor of copyright said things like: "The (copyright) fees are fixed by the law (at 0.5 of one percent) - what is so bad about one or two percent of your gross?" Schildhause's research proved the fees were not fixed, that a new Copyright Royalty Tribunal could (and in fact would) begin raising the fees and broadening the base against which they applied 6 months after the act became law. NCTA said, "Accepting the fees establishes

the 'legal position for cable in the communications infrastructure' and allows us to proceed to 'grow this industry on a foundation of solid business practices'." Schildhause proved the opposite was true - with the certainty that fees could and would be raised, that the fees would be expanded to cover not only cable gross income from normal subscription receipts but ultimately every dollar taken in by cable regardless of the source of the income.

CATA's support now included some luminary cable leaders - people who commanded a great deal of respect because of their twenty year or longer history of being a part of the young industry. George Barco of Meadville, Pennsylvania was one of these, himself an original founder of the association. Appearing before the NCTA board, he argued that cable should as a minimum be exempted from paying copyright fees to TV stations who placed Grade A or B signals over the cable community.

"These stations purchase programming based upon reaching every home inside of those signal contours. The copyright owners have been paid once for that coverage; why should we pay them a second time for the same homes?" It was, as Mr. Spock would later say repeatedly, "very logical."

TelePrompTer and group (MSO) owner United Cable (later to grow into the giant TCI which would in 1998 be absorbed by AT&T) took the Barco plan for no copyright for 'local signals' a step further. They urged the NCTA Board to adopt a plan whereby copyright would not apply for the following: (1) Signals from each of the three networks (ABC, CBS, NBC), (2) one PBS/ETV station and (3) 3 independent (non-network affiliated) stations. Gene Schneider for United Cable:

"In this way every cable home in America will have the same 'basic' service as a resident of New York City or Los Angeles; seven channels as a 'basic' right."

Very logical, indeed. But the NCTA, led by Boston based Amos 'Bud' Hostetter (Continental Cablevision), was in no mood to 'compromise NCTA's position before Congress' and in very convincing tones advised the NCTA Board:

"I fear for our political life in Washington if we change (NCTA) position now. We will never be able to show our faces on the hill (to Congress) if we change position on copyright." Hostetter and NCTA had 'given their word' to Senator McClellan and logic or not, they were stubbornly sticking to it.

Kyle Moore in his CATA-torial for May 1975 observed:

"Thus the NCTA is maintaining its credibility with Washington

politicians but it has lost its credibility with an industry."

As for 'changing position' when every logic suggested the present one is in error, Kyle wrote:

"Even our nation's constitution has undergone amendment when life styles changed, or basic untruths in the original document became apparent."

Hostetter and a small clique determining NCTA policy were convinced that by paying copyright fees, a few cents per cable channel per month per subscriber, would allow them to wire cities such as (his) Boston and drive cable growth with the importation of distant signals; New York City 'independents', for example. What nobody could foresee was the total revolution scheduled to start in September 1975 as HBO, a small-time local premium movie service in New York City, jumped nation-wide via satellite. In effect, Hostetter's NCTA policy was for cable-before-satellite appeared but by pushing it through Congress, the NCTA established a legacy that would follow the industry forever. And he would end up wiring (his) Boston (and suburbs) and making it pay not because of importing distant New York signals but as a result of the proliferation of satellite channels available by 1980 and after. Cable's future, none the less, was significantly shaped by the 'Hostetter era' at NCTA.

Reflections - March and April CATJ issues

"Until the April issue of CATJ arrived, I had no idea that the television stations owned and operated by the three major networks had succeeded in obtaining such exorbitant profit levels. Quite frankly, it does appear that the FCC has been overzealous in the issuance of unwarranted and unjustified regulations." (Senator Henry Bellmon, Washington, D.C.)

"I believe the cable television industry is currently over regulated by the Federal Communications Commission. In order to alleviate this problem, I have instructed my staff to undertake a study of cable television and its needs. We will investigate existing commission rules governing the industry to determine which measures are in the best interest of both cable systems and the public which they serve. In addition, we will look at whether cable should be regulated by federal, state or local levels, and whether the regulation has impaired the growth and development of CATV. Hopefully the recommendations of my Subcommittee will lead to the introduction of legislation that will directly address the problems to which CATJ refers." (Congressman Torbert H. MacDonald, Chairman, Subcommittee on Communications).

CATJ for June reported, "(CATA received) more than 130 similar letters from Senators and Congressmen following the revelations in March and April issues." Not all writers thought the thrust appropriate.

"I would like to protest the cover of April '75 CATJ, using a quote from the Bible in a joking manner. Certainly your people have better

resources for use in the Journal than offending Christians with such abuse of God's word." (Roderick Luoma, WJBK-TV, Detroit, Michigan)

As hearings commenced, the NCTA stock sunk to a new low. But cable operators were facing far more than the NCTA-led copyright threat. One major problem was something known as 'pole attachments'. Some history. The first known cable TV system was installed and turned-on Thanksgiving Day, 1948 in Astoria, Oregon by a man named Ed Parsons. Astoria, a distant-suburb of Portland, had no TV because Portland had missed the boat in the period 1946 - 1948 so that when the FCC 'froze' new permits, Portland was left without. Parsons had worked out a way to receive one (later, two) channels from Seattle, nearly 150 miles north. He decided to 'share' his reception but promptly ran into two obstacles.

First, he would have to run cable from one side of the street to another, thereby crossing over city owned and maintained 'rights of way'. In 1948, Astoria was reluctant to grant him such permission (the 'right of way franchise' system had not evolved simply because he was first). The next problem was finding some way to suspend his cable above the ground. The local telephone company owned poles but again, what he asked to do had never been done before and the Astoria district manager for telephone was not a risk taker. Parsons resolved the problem by being extremely creative. If he could not attach to poles, he'd attach to trees, people's roof eaves, and where none of that was available, fences. As for crossing streets, the creative part.

Parsons received the Seattle channel and amplified it. Then he sent it through coaxial cable with branch lines to individual homes his cable passed. So far, not very clever (although in 1948 he was pioneering a formula others would follow in the 1950s and even this 'basic technology' had never been done previously). When he came to a street, he connected the cable to an antenna and using a new amplifier 'boosted' the signal so that on the opposite side with a second antenna he could receive the amplified channel antenna-to-antenna, through the air! Then back into cable and more amplifiers until he reached the next street crossing. Of course 'retransmitting' his signal (remember it was only one channel, initially) through the air would in later years be a violation of FCC rules and run contrary to a business plan by allowing non-subscribers to tune-in with their own antennas. But Parsons was ahead of all of this and nobody in Astoria owned a TV set anyhow until they went out and purchased it specifically to connect to his cable line.

With this he avoided the telephone company and the town fathers,

both reluctant to grant him permission in the first instance. It was not a foolproof plan but in 1948 it was sufficient to win him recognition as "the nation's first (perhaps the world's first) cable TV system operator."

By the mid 1950s, cable firms and utility companies were routinely signing agreements that allowed cable to attach to power and telephone poles for a contracted fee, such as $2 per pole per year. And at this point in time, municipal bodies (town governments) were routinely accepting applications for cable TV 'franchises' and town fathers stood proud because they had played a part in 'bringing cable TV' to the community. 'Local' power companies and 'local telephone managers' were reluctant to stand in the way of progress and because nobody took a serious interest in the pole attachment aspect of cable's growth explosion, it 'just sort of happened' as it probably would have in Astoria save for Parsons' reluctance to push too hard when in his mind he was not certain any of it would work, anyhow.

But by the 1960s telephone and power firms were wising up. Cable firms were obviously 'making money' and the pole providers wanted a bigger cut. So, raise the pole rates. The cable operator had other options.

(1) He could bury his lines underground. Unfortunately this was a technology some distance from maturity and only made economic sense when the cable TV lines were buried simultaneously with power and telephone in the same trench through a 'shared trenching' arrangement. It worked in new subdivisions where 'everything went underground' before the streets and sidewalks were installed, but was a recipe for economic disaster in a built-up community.

2) He could, where the municipal body allowed, install his own set of poles.

I had discovered while building my own cable systems in the California Sierra Nevada foothill communities of Angels Camp, Jackson, Sutter Creek and Placerville in 1966-1967 there was no better way 'to get up the nose' of a foot dragging telephone company than to do just this. After 1960, regional telcos periodically went through 'dry spells' where for up to three years they simply refused to grant new pole attachment agreements unless the would-be cable firm acceded to their demands. These demands often included a '90 day notice to vacate' clause, or the most onerous of all, 'an option for telephone to acquire the cable system attached to the poles for a 'fair market value' with 30 day notice'. When cable planners objected to the onerous terms, they were offered an alternative: The cable operator could contract with

telephone to build the full cable TV plant and then they would 'lease is back to you' for what amounted to usury fees per month

My California telco-problems were hardly unique and in 1975 the Kentucky CATV Association convinced the Kentucky State Legislature there needed to be a better 'escape clause' than demands created by the telephone company as I had experienced in California. Accordingly, in Kentucky in 1975, the Attorney General found a way to allow municipalities to declare all poles in its jurisdiction 'condemned'. The object here was this: If a telephone or power company (or both in concert as was often the case) were delaying or shutting down the construction of a new cable system for a town in Kentucky, the town had the right to 'condemn' and 'take over' all poles. Then in the same action, they would rent or lease back space on the poles to telephone and power as was already in place and - and - also allow cable TV onto the poles as well.

If the NCTA did not have enough problems with copyright, it entered the pole fray in 1975 with what they thought was a novel solution. Because the problems stretched from coast to coast and border to border, and because each town with pole 'problems' had a local twist unique to their situation, the NCTA suggested that the FCC assume jurisdiction over all poles and all attachment agreements nation-wide. From CATA's perspective there were two things wrong with this platform.

1) The same FCC that had stuck its nose under the cable tent and was now creating rules and regulations affecting every aspect of cable had no business trying to regulate something as local and case-by-case unique as pole attachments.

2) The NCTA was urging a 'national (uniform) pole rate'.

In New York, cable firms were paying $5 per pole per year whereas in California and Oregon it was $2.50. If the FCC created a 'national average' of $3.75, there would be instant inequity for the $2.50 folks.

Of course the utility companies wanted the FCC out of the picture as well, preferring to slug out cable problems in courts of law. But one California cable industry attorney, Harold Farrow, had taught PG&E (power company) new tricks in court, which arrived at a $10,000,000 settlement that favored cable. So the utility firms were caught in the middle - against Farrow and others like him who had found new sympathy in court, or, the FCC which they neither knew nor understood.

The same NCTA thinking that prevailed at the Board level favoring copyright ("it will remove an unknown quantity from our future")

was at work here. A 'national pole rate', whatever the number might be, frozen by a federal agency, would be more preferable to the expansion minded big (MSO) operators than having each of their cable systems forced to go through long and drawn out negotiations. The 'big guys' were not-so-secretly planning to wire up every large city in the nation (from Miami to Seattle, San Diego to Boston) and for them, having immediate and cost-set pole attachment rates was an important agenda item. For Bill Risden in Cumberland, Kentucky, having his $3 rate jump to $3.75 so big time cable guys could wire up Philadelphia unfettered made no sense at all. Once again, the CATA - NCTA battle lines were drawn.

If one single CATJ article evoked positive feedback to top all others, it had to have been the "Would you believe a low cost spectrum analyzer for CATV?" appearing in the July 1975 issue. Some background. Until late in 1974, all cable operators and technicians were totally dependent upon FSM or field strength meters. Every amplifier, every trouble shooting call, every broken wire and every headend was 'put right' with a FSM. This was the *only* piece of test equipment, there was no second choice. But late in 1974 a small Indiana company (Texscan) with the assistance of market leader Jerrold introduced a new type of FSM. Rather than reading the signal strength solely on a meter face, the user stared at a 5" CRT (cathode ray or picture tube) which contained two types of pictures on selection. First, the actual TV image being received (a 'portable television set' carried with you and operated by battery, even at the top of a pole). Next, a series of straight and squiggly lines which after suitable training instantly allowed you to analyze not just one TV channel at a time but all of your channels. One glance, you knew what was right and what was wrong. This (Texscan/Jerrold VSM-1) instrument was the first 'spectrum analyzer' for cable TV.

Actually, that is not true. Back in 1967, a long 8 years prior, I and three friends sat down in Fresno, California to design just exactly such an instrument. We formed a company ("j-TEC, Inc".) and as a group proto-typed an almost identical instrument to the VSM-1. Only this was 1967, not 1975. We even built functional proto-types and took them to a cable TV trade meeting to show off what they could do. The price was $995, a great deal of money in 1967 but in fact by 1975 the cost of the VSM-1. Almost nobody in 1967 understood how important the device could be, and as I recall, when we closed down j-TEC no units had been sold and delivered.

Jerry Laufer was Engineering Manager for Gill Cable, Inc. in San Jose, California; John Messmer an engineer. Gill was a prominent TV broad-

caster (owned by KNTV San Jose) that had ventured into cable TV and Laufer was the sort of guy who had he been around in 1967 would have ordered several j-TEC instruments. But now, in 1975, he had a better plan which he revealed in total detail in CATJ.

Laufer's and Messmer's under $50 cost do-it-yourself analyzer started off with the common cable TV consumer set-top tuner box. As everyone knew, the box could change channels for the viewer as fast the buttons could be pushed. Messmer made channel tuning work in warp drive with a clever $1.00 circuit change and turned the set-top converter into a spectrum analyzer. By eliminating the push-button-with-a-finger tuning and substituting fully electronic high speed (a ramped, saw tooth wave form) tuning, the set-top box promptly displayed on an oscilloscope screen (or even a TV set!) all of the TV channels on the cable system, simultaneously.

This was one of those, "Why in the heck didn't I think of that???" innovations. In fact, I had proposed just such a system to Steve Richey back in the CADCO Lab in 1973 but I lacked the time (and expertise) to pursue it. Richey was up to his neck in CADCO cable equipment and the last thing he needed was a new project. When j-TEC designed cable's first-generation spectrum analyzer in 1967, there was no such thing as a set-top box (tuned by a varactor). It cost us several hundred real dollars to duplicate what set-top boxes were by 1975 doing routinely for as little as $25 each; such was progress.

Another sign of 'progress' drew Kyle Moore's suggestion of 'caution' in his September 1975 CATA-torial. The subject was pay-TV which in very limited areas was developing into a major sideline to business. A tiny firm operating from cramped, rented quarters in New York City called HBO was running 12 hours of 'pay TV movies' each day and then selling the packaged movies to nearby cable operators through a terrestrial microwave connection. Systems in nearby New York state, Connecticut, New Jersey and Pennsylvania were offering this movie-optional-extra pay service for prices that ran up to $10 per month per home.

The technology to make pay-cable available only to homes that paid for it was immature at best. The most widely used technique employed a 'scrambling signal' which was sent down the cable lines on top of the actual movie channel. In the home, you saw a scrambled, unwatchable picture but the sound was loud and clear. If you subscribed to the optional channel, a 'descrambler' (trapping) device was placed in your cable line to eliminate the scrambling signal leaving the movie channel more or less clear.

It was the unaltered sound that bothered Baptist Oklahoma-bred Kyle. 'R-rated' movies were so-rated often because of language. Words we readily accept without cringing today were totally new coming out of the TV set speaker in 1975. Destroying the picture with scrambling may have kept subscribers from pilfering the optional pay service, but the sound was left behind as a 'bill board' to what was on the channel. Actually, it had the desired and perhaps planned effect - people who discovered recent-release movies by the sound were often encouraged to call up and order the 'extra pay channel'. But not everyone.

Having "fxxx-you you son of a bitch" blasting from the sound side was less than palatable to many conservative, church going families. They complained, loudly, to their city authorities.

The cable operator was caught in the middle. The movies shown were selected by HBO, the 'scrambling technology' was innovative but by 2005 standards very basic and for the inexpensive costs involved in the descrambler device it was not possible to scramble the audio (sound) as well.

Kyle editorialized:

"Go into a family-oriented home that has elected not to take pay-cable. Switch to the pay-cable channel and listen. Listen first to the language of the R rated film, and then listen to the language of the home's parents as they try to explain to their six or seven year olds why 'these words' are coming out of their TV set's speaker."

It would be more than ten years before technology caught up with the problem and worked out a 'low cost method' of scrambling the audio along with the video. In that decade, the morals and language of an entire generation of American youngsters would change dramatically. Some would blame television; pay-television.

Scientific Atlanta was not a supporter of CATA and therefore CATJ was left off its 'approved-for-advertising list'. S-A support, when given guardedly, went to the NCTA. It was therefore of some notice that page 9 of CATJ September 1975 carried a full page advertisement from the firm.

"If you've been waiting for a chance to sell pay TV, this is it," read the headline. The opening text paragraph:

"The satellite is ready to deliver programming. And Scientific-Atlanta's earth station is ready to receive it. Which means your chance to make money selling pay TV has finally arrived. It's quite an impressive chance, too. Even conservative projections call for a phenomenal growth in subscriptions right from the start."

Bigger and better - satellite delivery

The same September issue announced the inevitable. "Next Month CATJ GROWS! We will expand the page size from 6 by 9 to 8-1/2 by 11, a 59% increase in page space." Satellite delivery arrival and CATJ becoming a 'grown up magazine' was no coincidence.

When old timers in cable TV speak in hushed, reverent tones about 'the glory of CATJ', most are referring to the period October 1975 through June 1979. In all of the years of publishing, this period created more excitement and major triumphs than anything before or since. Oh yes, the CSD (Coop's Satellite Digest) days (1979 - 1986) had their 'brilliant' moments and excitement but in my own mind, CATJ for the '45 big issues" was a period of no comparison.

As creator of the magazine, I loved the larger page format. With limited exception, I personally researched and wrote every word there every month. And laid it out and shot the photos and stood over Debbie Teel or replacement Richard Montgomery's shoulder as they 'pasted it up'. And because nobody but I was first-and- last responsible for the content, it was as opened ended as I wished it to be. If an article required ten or even twenty ages of text and diagrams and photos to tell 'correctly' the story being related, so be it. It was a passion of mine - leave nothing of importance to the story being related untold. Don't skip material because it would not 'fit' - simply use more page space to complete it as it should be done. Few editors had that much elasticity.

October 1975 was a watershed issue. Bigger, and I used pages 19

through 36 to introduce the cable TV industry to satellite TV - the new 'HBO' version. Key in this was Scientific-Atlanta (S-A), the Atlanta based firm that had provided TelePrompTer with a transportable, trailer mounted, 11 meter earth terminal. During September I spent three days at S-A and they knew from CATJ study I would not be satisfied until I understood every aspect of what satellite TV was all about.

The cable operators fell into two groups at this stage. Those who were big enough to afford the S-A $125,000 price tag for their own 11 meter dish plus electronics and those who were not. Most were not. It was therefore of intense interest to me to establish 'why one had to use an antenna so monstrous in size (size equalled cost)' to receive the satellite's signal.

HBO had launched late in September (the 30th) with live coverage of a Cassius Clay/Mohammed Ali match-up held in the Philippines ('The thrilla from Manila'). Two cable systems were dish-ready, one in (Jackson) Mississippi and another in (Ft. Pierce) Florida. HBO was using the RCA F1 (as in 'flight #1') having failed to work out a satellite deal with Western Union's Westar satellite(s).

Also using Westar at the same time was the first toe-in-the-water PBS (Public Broadcasting System) experimental services. Everything about the satellite field was brand new, unexplored and little understood by even the leading edge engineering guys.

At the very close of the S-A 'tour in print' I reported a conversation I had there with an engineer. We were standing in their 'junk antenna yard' and he made a comment which ran contrary to everything else I had heard to that point.

"See those 12 footers (under 3.6 meter) over there? I plan to take one home with me and stick it in the backyard. Of course it won't work nearly as well as that (pointing at an 11 meter monster hovering high above us) but it will work and it would be pretty nice to have HBO movies in my living room."

Bingo!

Serious research began. The satellite equation was complex. Each satellite channel ('transponder') radiated a limited amount of 'power' (typically 5 watts at that time - the same as a 'legal' CB radio) towards earth. That power 'spread out' over the footprint (coverage area) of the transponder so at any single spot the 'power' (signal level) available was almost unmeasurable. The 'secret' was to create a receiver with great sensitivity so you could scrape by using an antenna small enough to 'fit in the backyard'. As I stood there by the junk yard, I instantly recalled Steve Richey and our experiments with ATS-6 in 1974.

Returning to Oklahoma I did the calculations and came to a surprising conclusion. Even with the 5 watt power level of the Westar satellite, a dish as small as 10 feet in diameter (barely 3 meters) should produce reception. So why was S-A insisting cable operators use an 11 meter antenna?

The answer to this took months to work out. First there was a 'licensing' problem. Satellites use 'microwave' frequencies and these same frequencies were also being used on earth by AT&T and other telephone companies. As you drove across America and spotted a self supporting steel tower loaded with cornucopia-shaped horns you were 'looking at' the same 'frequencies' as satellite.

The FCC had never previously licensed 'receivers' (only transmitters) but with microwave they made an exception. When AT&T first began using the 4,000 megacycle frequency range for their 30-50 mile spaced microwave relay towers in the late 1940s, they extracted from the then-FCC an agreement; nobody else could (ever) use these same frequencies for anything. AT&T argued, successfully at the time, that the 'backbone microwave network' had such importance to America that for as long as telephone needed these frequencies, no other possible users (sources of interference to Bell) would be allowed there.

When satellite came along as a serious system in the early 1970s, they needed a frequency range as well. At the time AT&T was under the belief that they, AT&T, would-be one of if not the 'only' provider of satellite 'relay'. AT&T envisioned satellite relay developing along the same lines as their terrestrial network and of course to them that meant AT&T would own and operate the system. So AT&T was agreeable to 'sharing' the frequencies with terrestrial because it was 'their own' frequency band anyhow. Perhaps at some higher level in AT&T they believed, mistakenly, that if the satellites were assigned to frequencies AT&T already 'owned', that would be another reason why they and not some competitor would be the 'satellite link' provider of the future.

Only the FCC didn't see it that way and after the frequency assignment had been decided, the Commission granted satellite licenses to Western Union and RCA - right along side those of AT&T.

To 'protect' the terrestrial microwave network, AT&T then insisted that each satellite receiving terminal must be licensed by the FCC. With forecasts of only a few hundred such systems per year, the FCC readily agreed - after all, the Commission was in the business of 'granting licenses' and 'controlling interference', was it not?

Which brings us back to the licensing challenge. Before the FCC would allow a cable system to operate a 'television receive only' (TVRO)

terminal, a license. And before a license, an application for a license. And prior to the application, an in-depth 'engineering study'.

The Commission's logic ran like this:

(1) TVROs were expensive (witness the S-A $125,000 price tag)

2) To install one required a huge hole be dug in the ground, which was filled with concrete and steel re-enforcing rods and then the 11 meter satellite dish would be constructed piece by piece (a four day job for a four man crew) on the 'pad' of concrete.

3) If all of this was done and then after the dish was turned-on the cable operator (or other satellite user) 'discovered interference to the reception from a (terrestrial) AT&T microwave link', there would be hell to pay.

4) Therefore, *before* the dish was installed, *before* the hole was dig and concrete poured, an engineering study to determine 'the probability that interference to the terminal might occur' as a result of terrestrial AT&T towers.

A tiny infant industry sprung up - engineering firms who took your cable headend site (the most logical spot for the dish) and on paper studied all AT&T sites within 50, 100, 200 miles. "Would any of these cause interference?" The price for this 'study', which had to be attached to the FCC license application, started at $3,500 and climbed upward. Such a study today, if required, could be performed on a PC in perhaps 2 minutes time. In 1975 and for a decade to follow, this study was days in length and required intensive manual labor.

My personal opinion of the validity of such studies could be summed up in a single word: 'crap'. By November I had located with the help of some ham friends several dishes varying in size from 6 feet to 12 feet. All were ex-commercial use, located in junk yards or buried in weeds behind telephone company buildings. I was also in daily contact with a number of firms who were not pleased that S-A had 100% of the cable TV dish system market. Prodelin, a name brand manufacturer of dishes below 5 meters in size, was one.

S-A, clever as they were, had worked out that only two other firms in America at the time had the resources and technical capacity to build cable TV dish category antennas of 11 meter size. One of those, Andrew, would shortly enter the marketplace. So S-A had a selfish, corporate, reason to keep the antennas up in size. Somebody at the FCC had 'bought' the reasoning found in a S-A engineering study and the FCC was operating under the belief that only dishes 11 meters in size (or larger) could meet the FCC's technical criteria for a license.

Clever S-A. First assist the FCC in writing the rules so only really

large antennas could be used and then just happen to be the only established source for those antennas!

The first competitive-to-S-A dish system lowered the barrier, slightly. It was a ten meter Andrew system for Tulsa (Oklahoma). S-A's 11 meter dish used something known as a 'prime focus' feed. Andrew introduced a slightly smaller antenna using a different approach; 'Cassegrain' (feed). It was a small point but already manufacturers were looking for ways to introduce smaller antennas. The Cassegrain created a 'narrower focus' for the dish, giving the Andrew ten meter the same characteristics as the S-A 11 meter. This would be the first battle line drawn but dozens more would follow.

Meanwhile in my backyard things were happening. With the words of the S-A engineer still ringing in my ears ("It would be pretty nice to have HBO movies in my living room") the major elements required were on a 'shopping list' hanging above my office desk. The dish - well, I now had some. The receiver - as editor of CATJ, I could 'borrow' one long enough to 'conduct tests and write a review for CATJ' if push came to shove. CATJ equipment reviews were already legendary and all I had to do, I discovered, was call a firm on the phone and mention a 'possible CATJ review of (their product)' and an air freight box would arrive the next day. The amplifier - this was going to be a serious problem. Of all of the essential ingredients, the 'low noise amplifier' or LNA was far and away the most difficult to source. The original ATS-6 amplifiers built by HP used something called 'bi-polar transistors' and while they were in the wrong frequency range and therefore unusable for HBO reception, they provided a clue to sourcing.

S-A had managed to corner the market in 4,000 megacycle suitable bi-polars for their LNA portions which of course was keeping others out of that portion of the business; another clever move by S-A. It turned out that only one firm in the world was manufacturing these special transistors at the time and by some good fortune the head engineer at that firm was a devoted fan of CATJ. His firm had a supplier agreement with S-A that prohibited them from selling product to any other manufacturer but there was a loop-hole here; amateur radio use. Nothing in the agreement stopped them from selling a modest quantity to 'hams'.

I was a ham.

It reminded me of the way the inventor of the first electron tube, Lee Deforest, had sold his 'rights' to AT&T in 1912. The telephone company acquired all rights, 'except those relating to amateur radio experimenters', which Deforest retained because of his desire not to

have amateurs cut off from using and experimenting with the 'audion' devices. The 'amateur users' would through the early 1930s become manufacturers in their own right using Audion patents. Could this be a repeat?

The next stop was Steve Richey who was fascinated by everything that was happening but so hopelessly buried in trying to create enough cable TV product to keep his cash flow positive that he had little time to do more than show interest. And he lacked the specialized test equipment required to turn the handful of transistors I had acquired into working LNAs.

As good fortune would have it, several small companies with a desire to enter the LNA business had also been in touch. One, located in a suburb of Dallas (no, not CADCO) had sent their sales manager - a man named Tom Humphries - to see me. I displayed the 'amateur grade' transistors to Tom and he almost came over my desk in one lunge to grab them.

Their possession would make it possible for his engineers to design a LNA. Designing was step one, and if they got that far, we'd tackle their getting enough bi-polar devices to actually start manufacture. I, of course, with my backyard dish system would be their 'test station' for the performance of the LNAs. And this would solve *my* 'LNA problem'.

Time was of the essence. I was getting the interest of the CATA board because privately I was convinced a suitable cable system dish system could be built around a 4.5 meter or even smaller dish. This kind of size reduction translated to huge dollar savings, $125,000 to down perhaps as low as $20,000. And at $20,000 dishes for cable systems such as those operated by Kyle and Bunk (Dodson) were suddenly affordable - even profitable. Remember - if you were collecting $5 a month as Kyle was for cable service, the addition of HBO would double or triple that and even after paying (50% to) HBO for their movies and covering the cost of the satellite dish system, the money that 'stuck' in the cable operator's pocket could be double what it was before HBO.

"Do you need money to make this work?" Kyle asked. I said no, I had plenty of support from the manufacturers (such as Prodelin) who would ultimately cash in big if this happened. "What do you need?" he asked.

"Some time with Rick (Brown, our Washington attorney) because even after I make this work with smaller dishes, we are still faced with FCC rules that say we must be licensed and the dish must be 9, 10 or 11 meters in size."

The FCC had to be talked into relaxing the rules - my target was total elimination of the license requirement. If the cable operator took full responsibility for resolving the interference problem, why should there be a license? As I explained to Brown, "Paying $3,5000 or more for an engineering study to prove you won't have interference is one thing with a $125,000 11 meter dish. But for a $20,000 4.5 meter, it makes no sense. Not when you can pick up smaller dish up and move it twenty or fifty feet to eliminate the interference!" I was exaggerating slightly but Rick understood my point. He began in February 1976 to take the measure of the FCC's commitment to AT&T over dish sizes.

The report was not encouraging.

"Some deals have been made, there are people in the (AT&T controlled) Common Carrier branch who say they will die before they relax the 9 meter rule. I think this may require the assistance of Congress."

What I had not mentioned to Rick, at this stage, was a broader concept forming in my mind. The LNA technology was maturing in 30 day jumps. As the LNAs became better, rapidly, the smallest dish you could 'get by' with was shrinking. I got myself close to a number of Japanese firms who, it appeared, were about to announce some startling new transistors - called GaAs-FETs. If they worked (they would), on paper at least I could show that a 6 foot (1.83 meter) dish would produce pictures from HBO. Within two years I would prove this paper calculation with a six foot dish at a gathering of cable operators to a rousing round of applause.

One day I sat down with the theoretical 6 foot dish system and after talking at length with Steve Richey about the design of the (indoor portion) satellite receiver being sold by S-A, worked out how much a complete 'home dish system' would cost to build in 10,000 lot quantities. It was perhaps March 1976. With my limited experience in microwave production techniques, I sat there stupefied when the number finally totalled on my desk calculator. Under $900, but these were future numbers: 'If' the GaAs-FETs worked, 'if' their price came down substantially, 'if' dish makers changed from one-off to mass production, 'if' people like Steve Richey designed receivers instead of the engineering 'team' at firms such as S-A. I filed the study away for the time being, and decided that 'if' a home dish system could be manufactured for $900, it probably could be sold installed by a satellite system installer for not more than $2,500. At that price, everything we knew and accepted about television program delivery would change. Even I did not foresee that a complete system including distributor

and retail mark-up would one day go into homes for $900!

It also meant that cable TV might be in trouble. If a home could purchase a dish system for $2,500, would they think that was a better deal than subscribing to cable? The answer would be three years in coming for as long as a home dish system - even if only on paper - could deliver but HBO and perhaps up to four or five additional channels, it was not likely to become a 'big seller'. On the other hand, if the number of satellite delivered channels proliferated to say ten or twenty, well - all of the rules would change. I was editor of the *cable* industry's most prestigious magazine and had no business creating new technology that might put cable into a financial tail spin. I decided it would be dangerous to even discuss the concept with anyone else. That would change.

Although the February 1976 issue would update the status of cable dish systems (25 now installed, another 25 being FCC processed - up from two at the time of our October S-A report), the major magazine thrust continued to be 'meat and potato' issues. The FCC's technical rules which mandated a phased in system technical measurement regime was now into its second year. A system failing to make measurements, correctly, writing down the results and filing paperwork with the FCC, was subject to large monetary fines; up to $50,000. For the next two years, new test equipment products would be introduced almost monthly and tiny firms buried in garage work shops would become national and, briefly, wealthy.

CATJ's approach was three fold.

First, carefully and fully explain the test procedures. To do this I had created a 'FCC Compliance Measurement's Cookbook' which if followed step by step would allow the cable operator or technician to 'fill in the blanks' after measuring the system as required; and, be 'compliant' (legal) with the regulations. This $25 book was augmented by an ongoing series in the magazine that offered options for measurement. Often there were two or more different ways to conduct a test and still satisfy the FCC's rules. CATJ explained them all, and made special emphasis of those that could be done with a minimum of new test equipment.

Two, with new test equipment designs pouring out of design plants coast to coast, each hoping to catch the cable operator's attention, CATJ began to conduct in-depth 'technical reviews' of equipment. At the same time our advertising content began to swell, and by mid-1976 over half of our ad pages related to testing.

And the brilliant plan; number three. The FCC had begun visiting

cable systems demanding to see their 'voluntary' non-binding test results. For most this meant a stern warning if no tests had been done and a 'citation of noncompliance'. But as a practical matter, the tests required more test equipment than virtually any system smaller than 3,500 subscribers owned - those with 500 or fewer as was true with the majority of the CATA members sometimes did not even own a field strength meter (FSM). March 31 (1976) was a 'test by this date or risk citation' date. We had done a survey of CATA members and knew the truth.

The plan. CATA would arrange for several sets (five in all, initially) of complete test equipment and they would be stationed at widely separated sites so as to be within one or two days shipping time of virtually any cable system in the country. Then we would offer use of the equipment to CATA members (first) and non-members (second in priority) for a week long 'rental fee'. Moreover, each system would be sent a customized 'Test Measurement Book' prepared by myself with a combination of step-by-step instructions and 'fill in the blanks as you make measurements'.

But there was not sufficient time remaining to reach the hundreds of as-yet unmeasured systems before March 31. So I instructed CATA counsel Rick Brown to go to the FCC's David McKinley, who as Chief of the Cable Television Bureau, had the authority to do two things:

1) 'Sanction' the program, and,

2) Subject to delivery of the equipment to a system, postpone the March 31 date.

A letter obtained by Brown from McKinley appeared in CATJ for February where we announced the program. For some systems, March 31 now became as late as July or August - all subject to the list of systems ahead of them and the scheduling of the equipment.

To make this work, CATA had arranged with test equipment manufacturer Larry Dolan (Mid State Communications) to package equipment he manufactured and equipment he could arrange from competitors. The fee was $500 for a week's rental use for CATA members or $600 for non-members. And in fact, if two geographically close systems went together on a week's rental and split the costs (with each operator assisting his co-renter), a system could get by for slightly more than half cost.

Most of the money went to Mid State but enough 'stuck' at CATA to allow us to bring in some temporary help to administer the project. The FCC letter appearing in print was very important because it explained how operators who had ignored the testing to date could gain

several extra months without penalty. Of course it would still cost them (rental) money but that was better than actually buying the equipment ahead of the 'real' deadline of March 31, 1977.

The 1976 deadline was real enough but a practice exercise. Every system had to make measurements but the measurements 'did not count'. Their purpose was to help the cable industry adjust to the new measurement requirements, and at the same time by making tests alert the cable operator to areas in his system where he had to improve picture quality before March 31, 1977; one year later.

Virtually everyone in the industry considered CATJ 'their bible' for matters technical or legal. TVC had been challenged by 'CATV Weekly' and a handful of newsletters each attempting to cash-in on the rapid changes in what had been a nice, quiet, docile 'little industry'. All of this new technology and the FCC's technical standards for cable was creating a new breed of technical guy (and gal). Some were ex-broadcast engineers, a few were people like myself who lacked any formal engineering training (my two years as an electrical engineering undergraduate at UC Berkeley before I switched to Journalism was far from a qualification!) but who had come up through the ranks absorbing everything that passed their way. Some even wore suits and ties to work!

I was approached to lend a hand with the formation of a 'national technical association for cable engineers', and declined. A lady named Judy Baer, an acquaintance of CATA attorney Rick Brown, was behind the movement. She would be rewarded with a job as their Washington based office manager, briefly, after it all came together. Their concept was this:

Cable systems were becoming more complicated and the FCC rules attached large monetary fines to anyone caught not running a 'clean' system. Therefore in each cable company there had to be a 'competent technical manager' who would look after 'compliance'. This was the guy (or gal) who kept the company's pictures bright and clear, advised the money folks about what new technology was worth pursuing, and oh yes - overseeing technical compliance with the ever increasing technical standards. The FCC thought this a fine concept, ultimately resulting in better quality cable TV reception, even if it had to be forced on the cable operators.

Kyle thought he could do (and in fact did) all of these things in his small systems. He also thought I could, through CATJ, 'teach' those who did not know what to do all they needed to know. The new breed of folks who went to work in suits and ties and directed a cable firm's technical operations thought me dangerous. And I thought (many of)

them pompous.

First of all, to a man (or woman) they loved to wrap the simplicity of their jobs inside of complex equations and obscure technical formulae. I was just as wed to explaining these complexities in the simplest possible language, assuming as I did people who did not understand the flow of electrons would understand how a basic water distribution system worked and would comprehend cable if I used water as an example. Increasingly the new cable upper management folks were coming into our industry from non-technical fields and unlike Kyle Moore, they did not understand even the basics of TV reception and distribution. Which made them sitting ducks for the suit and tie 'engineering manager' who was doing his best to protect his job and salary by making everything he (or she) did seem ever more complex.

I could count on having someone wearing a nice suit and tie approach me at any cable meet larger than 5 in attendance and 'thank me' for 'taking the time to explain log antennas' (or whatever the most recent issue of CATJ dealt with).

"Now I can deal with (name of his engineer) more or less on the same footing."

Which is why the new breed of 'professional' technical folks disliked me. I took the mystery out of what they did, in CATJ, and moreover I pointedly wanted nothing to do with their new technical society (SCTE or Society of Cable Television Engineers).

Enough people of great fame in the industry wrote CATJ to pat the magazine on the back that even the most anti-Cooper guy was hard pressed to fault our publication's technical material. An example:

"Your current series on Antenna Basics (June, July and August) is very good! I personally have a lot of difficulty explaining cable antenna design to people who lack at least a basic antenna engineering background, and I think you have done it very well. I would appreciate some extra copies of these issues for our antenna-lab people working at the University of California Berkeley, Stanford and CIT (California Institute of Technology)." (Bruno Zucconi, Scala Radio Corporation, San Francisco).

Bruno was considered by anyone with antenna knowledge to be the 'godfather of cable television antennas' and he had begun writing articles for magazines such as Radio-Electronics and RadioTV News in 1950 when TV was an infant industry.

Or, "We would like permission to reprint pages 10 through 41 of your February issue, in particular the two features entitled 'It is not

nice to fool with mother nature' and 'Transient clipper for CATV power supplies'. The reproduced articles will be for use within our engineering staff as a part of their ongoing training in cable TV advanced theory." (J.T. Carlson, Chief of Operations, Western Tele-Communications, Inc., Portland, Oregon)

Years later I would work out that the suit and tie folks were uncomfortable when on their own; put them on a committee and they smiled from ear to ear. SCTE was one 'giant committee' with a politically derived 'pecking order' which began with the NCTA's technical guy (a friendly fellow named Delmar Ports) as 'leader' and working downward to those 'seeking certification'. I think it was the 'certification' that annoyed me the most.

The first ones 'in' to SCTE wrote 'rules' which made in mandatory for those who followed to 'prove their technical competency by taking exams'. To justify all of this, an arrangement was made with a correspondence school group to administer the 'courses' and exams.

If they were as competent as they claimed, the exams and courses should have been of their own creation being no more complex than FCC testing or creating CATJ each month. Rather, an 'outside' company collected the bucks and SCTE collected the graduates. The courses and their administration should have been the pivotal link that made it all work and of course had they done it that way, SCTE would have been largely funded by the training courses.

In early 1976, the FCC guy I spoke with almost daily let slip the Commission was 'considering' a rule making which would not allow anyone to 'work on' (as in adjust or trouble shoot) a cable television system unless that person had a 'license' from the FCC. This had SCTE paw prints all over it and in fact it took me ten minutes to verify that assumption. I quickly telephoned Kyle and asked him how he would like it if the FCC adopted a rule saying he could not maintain or operate his own cable systems unless he went to a school and obtained a license to do so. The answer still rings in my ears and was one of the few times in the six years I was close to Kyle I heard him use the 'F' word. I suggested there was more behind this than mere FCC intrusion and SCTE meddling.

"Suppose all of the CATA members had the same demand placed on them - what would they do?" asked I.

No hesitation. "Sell out."

"Exactly. I fear this is a move by the MSOs to force guys like you to sell out to them at a price that is depressed."

"F... 'em," he said again.

Kyle and I were not always right with our judgements. This was an example of being wrong. CATJ immediately ran a reader survey card (February 1976) posing the question, "Do you think cable TV technical people should be licensed?" We published preliminary results in April and wonder of wonders, 72.42% of readers answering the survey believed licensing was "a desirable direction for the industry". And 85.19% believed the licensing should be done at the Federal level. Some major changes were happening here and it was perhaps time to sort out what that meant for CATA.

My next annoyance related to SCTE attempting to take credit for actions which did not involve them or for which they could not legitimately claim credit. For example, there was the 'small' matter of convincing Congress and the FCC that earth station terminals should not be licensed at all. But that is, again, getting ahead of the story.

Poles. If Ed Parsons had failed to reach agreement to attach his coaxial cable to local utility poles in November 1948, others would soon work out how to do this. Apparently the first-ever 'pole attachment agreement' was dated October 2, 1950. John Walson (nee Walsonovich) of Mahony City, Pennsylvania on that date signed an agreement with Pennsylvania Power and Light, "to allow temporary attachment to 13 poles" in return for a modest fee ('temporary' was still in place in 1976). Meanwhile back in Astoria, Oregon pioneer Parsons had worked out that 'squirting' a TV channel across a street from antenna to antenna was not only fraught with technical problems but probably not in his best interest. Shortly, the locals discovered they could import a TV set (from Seattle), point their own antenna at his street crossing antenna and watch TV without connecting to Ed's cable!

Parsons then decided to replace his 'signal squirters' with a bit of underground cable. Astoria - the city - had a series of underground ducts in place, mostly for storm water drainage. Without bothering to advise the city he went out at night and one by one replaced his street corner antennas with a loop of coax that dropped into the storm drainage inlet on one side of the street and then back out on the opposite side. He did this without any permission from the city and it would be 3 years (1951) before the city finally granted him a franchise which in turn allowed Parsons to acquire a suitable pole attachment agreement.

CATA had conducted a study of pole attachments in mid-1975 and the numbers revealed a then-lowest- cost-per-pole per-year was in California ($2.50) while the highest was in New York ($5.00). All of this was in response to the 'panic' which NCTA was creating by

essentially 'demanding' that the FCC assume jurisdiction over such agreements.

Many of the early operators, including Ed Parsons, simply refused to even 'talk' with the local utility operator after initially being told, "no - go away". Parsons would later admit he was so intimidated by the giant size of the telephone company that when the local manager in responding to his request said, "no ..." he took that as a final answer. Perhaps what "no" really meant, in November 1948, was ... "I have not the faintest idea why you want to attach to our poles and I can find nothing in my guidebook to allow you to do so. Tell me why I should honor your request?"

Some utilities did allow others to attach to their poles - typically 'others' would be the city for street lights, the city for traffic light control circuits, or for special short-term events a group wishing to hang signs, banners or public address system cables. Full-time, once there never taken down, privately owned wires were simply foreign to the utility company. And local managers, such as in Astoria, were reluctant to say 'yes' to a request which did not fit their guide books.

Larry Jacobson was a pioneer cable system builder in Sonora, California. He connected his first subscribers in 1951 dragging San Francisco TV channels across 120 miles to his Sierra Nevada foothill location. Sonora had been a major gold mining town 100 years prior, but in 1951 Sonora was trying to figure out what it wanted to be next. Jacobson was a World War Two vet, semi-invalid from a war wound, and tough as nails. He once told me of his one and only visit to the local telephone company office in that era.

"I asked them how much it would cost to attach my wires to their poles. They told me there was no provision for doing that so I left and went straight to the lumber yard where I bought a pickup truck load of 14 foot long 4 x 4 posts."

He paid $6 for each pole, which even in 1975 would seem like a bargain. Now comes the imagination part. Imagine a man who could only get around with the assistance of a wheel chair, out by the side of the road somehow lifting 14 foot long 4 x 4s off the truck, hauling them up a steep rocky hillside and then digging a hole and 'planting' the posts. Now imagine him doing this several hundred times, and after planting each pole somehow getting to the top of the pole to attach his wire and amplifiers.

Like I said, Larry Jacobson was 'tough as nails' and not the easiest guy to get to know. I am proud that he was my friend, like hundreds of other cable TV pioneers spread across America.

The alternatives were paying money monthly to rent pole space, or going underground. It was in California that utility companies discovered the art of 'freezing' pole attachment agreements. Between 1959 and 1970 or so, on and off like clockwork, the cable operator would awaken one day and discover his 'friendly' utility company had decided not to grant him permission to attach to any more poles. Then the court battles would begin and to keep from actually having the cases heard in court, the utilities would at the last minute (often only days before the court proceedings were to start) 'unfreeze' and cable could continue growing. California cable pioneer Bill McPheeters was one caught in such a situation.

"When we decided to cable Carmel (California) we knew there was going to be major problems with getting the cable around. For one thing and it was a biggy - Carmel had insisted that all utilities be underground. Carmel may have been the first community of any size in America to rule-out overhead lines.

"Telephone and power had underground ducting installed. Both had spare space but neither would talk with us. So that left us with one choice - we had to install our own underground, our own duct. I wish I had opened a car wash along with starting the under grounding there. We spent several thousand dollars each month sending people down to the local car washes after we trenched along side their parked vehicles or our concrete saw sprayed their cars with fine, pulverized dust!"

NCTA's MSO members, intent upon cabling downtown Detroit, Boston and Phoenix (to list but 3 of ultimately more than 100 cities) did not want a McPheeters' experience. They apparently believed that if the FCC took over all aspects of pole attachment, including ultimately assuming authority to 'order' utilities with 'spare underground duct space' to make that space available to cable TV, this would allow them to get on with the business of 'cabling America' much faster.

CATJ, speaking for CATA, hoped otherwise. In true CATJ fashion, a 16 page report ("Everything you never hoped you would need to know about setting your own poles") revealed it all from pole grading to pole setting with a generous amount of reports from cable operators already doing this. To make the focus more pointed, I had arranged for a special meeting of the Oklahoma CATV Association to convene and during the gathering we brought in a crew of voluntary cable guys who set up in an adjacent field to demonstrate in a three hour cram course how one went about setting his own poles. Ten photographs accompanied the report and one could not miss CATA President Kyle

Moore, dressed in suit and tie, manhandling the pole from the pickup truck headache rack into a hole he and a helper had 'popped' with a post hole digger. Larry Jacobson would have been proud of 'Mr. Kyle'.

Of course I never anticipated that Amos 'Bud' Hostetter, when wiring Boston, would find 'setting his own cable poles' a suitable substitute for dealing with the local utility firms. It was this kind of CATJ report which most provoked the suit and tie guys - which of course is why Kyle arrived to set poles dressed in a suit and tie for the photographs. What we intended to show was the vast gulf or distance that lay between Amos Bud and Kyle Moore. They could both wear suits to work but Kyle wore his to set poles while Amos Bud wore his to have tea with Senator McClelland. It was one of those 'a photo is worth a thousand words' opportunities.

This sort of 'journalism' increasingly took a toll of the MSO types. When Kyle attended a trade show, he was surrounded by a bevy of well wishes patting him on the back or telling him their private system problems. Amos Bud and other NCTA leaders stayed off the show floor possibly out of fear of being accosted by the same guys that were congratulating Kyle. How closely was the industry following Kyle and CATA? The month following the CATJ "everything you ... about poles" report a tiny supplier in Grantville, Pennsylvania announced a new attachment to their line of 'cable trailers' (the kind cable operators used to transport large reels of coaxial cable). It was a 'pole carrier', a contrivance that attached to the cable trailer to allow it to also haul wooden utility (cable) poles along with the rolls of cable. And months following the initial report, when CATJ was still beating the 'set-your-own-poles' drum, the magazine continued to carry some unusual (for an electronics) magazine advertisers - such as F. Bowie Smith & Son, Inc., a "lumber, timber and poles" distributor in Baltimore, Maryland and Oeser Cedar Company, Bellingham, Washington, "where flat car loads are our speciality".

Gridley

In Coffey County (Kansas), not far from an installation known as the "Wolf Creek Nuclear Plant" on highway 57, the tiny town of Gridley, population 320 give or take a few. By any cable TV standard, Gridley was too small to cable and if one 'counted' every home or building in town capable of being a home, it would be a number smaller than 100.

The FCC rules that went into effect March 31, 1972 required *every* new cable television system to file with the FCC a CAC (Certificate (of) Compliance) before starting a new cable system. The CAC attachments had to include a list of channels to be carried, some detail of the system size and planned construction, and a copy of the community-granted franchise agreement with the proposed cable operator.

The 1972 rules established criteria for all franchise agreements and basically said that if the franchise was not in 'conformity' with the federal rules, approval for the cable system would not be granted. In this way, the Federal Government had usurped local control of franchises.

Moreover, by March 31, 1977, all cable systems had to have a franchise agreement in place which did conform. In effect, all older franchises would expire (as far as the FCC was concerned) March 31, 1977 and prior to that date had to be replaced with newly negotiated agreements that did conform.

Kyle believed strongly this requirement should be tested in a suitable court. And he believed it should be tested prior to March 31, 1977. So he, with the assistance of CATA Washington attorney Rick Brown, created a 'test' almost guaranteed end up in court. First, Kyle selected

a town (Gridley) where he would do what he had always done in the past: (1) Obtain a franchise, (2) Build a cable system. Only without a CAC.

Then to make very sure the FCC could not ignore his blatant action, CATJ would make the FCC aware of the challenge. There was of course more than a small amount of danger for Kyle in all of this. There were potential monetary fines (totalling $50,000 or more), and possible jail time (up to two years). Rick Brown believed that if the 'test case' was properly framed and reported in CATJ (and ultimately elsewhere as well) Kyle would be seen not as a law breaker but a law 'tester' and the fines plus jail time would be mooted if the test case went bad at the court level.

Kyle was 'risking' around $25,000 of his own money (he was a self made man of some substance but until he sold his full set of cable systems some years later could not be classified as a 'multimillionaire'). None of the costs involved came out of CATA, including (contrary to some rumors) Rick Brown's legal time. It was the way Kyle did things - put on a suit to be seen (in photographs) setting poles, reach into his own pocket to fund a test case.

The FCC's decision that all cable franchises previously granted would 'expire' on March 31, 1977 was having some unfortunate side effects; an entirely new breed of 'would-be cable operator' was crawling out of the swamp. All because cable systems operating prior to April 1, 1972 were required to return to their cities and renegotiate new franchises to be submitted to the FCC prior to March 31, 1977.

Now normally a cable company and the local community could sort out 'problems' - of which there were many. For example, towns were growing and some cable operators were short of cash to keep up with that growth. So new suburban developments appeared and the people living there were without cable TV - which they complained to city fathers about. Or cable firms were run, like Kyle's, by a 'part time' guy who was 'left in charge' when the owner-operator was out of town. Maybe the guy was an electrician or a TV repairman, who had to run his own business as well as being responsible to the owner-operator. Not a good situation but if the system had 200 subscribers or even 500, there was simply not enough money to afford a full-time person. Even if you were the 'owner-operator' and lived in town. So when a cable system fault occurred, and it was 'after 9PM at night' as might happen, the folks affected might have to wait until the next morning to have cable restored.

The cable operator, hat in hand and only there because the FCC had

said he must renegotiate the franchise to make the wording conform to a 'federal standard', was before the town fathers. The newspaper dutifully reported the application (another FCC requirement - putting the application on 'public notice') and anyone and everyone who had a gripe with cable marched down to the hearing. The chances the cable operator would get through this reasonably unscathed was 90-10 in his favor.

Now the slime from the swamp. Out there in cable land were people who may have only learned to spell 'cable' the prior week. They saw this as an opportunity to do two things: (1) Have the present operator's franchise denied, and, (2) Buy his assets for a fraction of market value (a cable system with no legal authority to operate would have to shut down - and that meant the original owner might reluctantly sell the 'worthless' system to a new franchise holder.) So in early 1976 these folks slithered out of the nearest swamp and began appearing before city councils all over the nation. Kyle called them a 'plague' which perhaps they were. What they did in Hugo, Oklahoma was to promise the city fathers, "more channels, lower rates, a 'free' community channel," and far more. The existing cable operator knew these were hollow promises which could not be fulfilled but after a heated public debate the town fathers denied the existing operator's new franchise and awarded the town to the new applicant. Hundreds of existing operators faced identical scenarios.

CATA investigated as many of these situations as manpower would allow and by March 1976 we had run out of manpower. First there were ten, then twenty, then 100 - it was an explosion from coast to coast. We found a town where the existing cable operator was sandbagged by a new firm consisting of the local newspaper publisher and his son, the town's only CPA, and the owner of the town's only grocery store who by a strange coincidence also happened to be the husband of the mayor!

CATA brought the rapidly mounting written reports covering community after community where this was happening to the attention of the FCC. We also pointed out that the majority of the cable firms having these problems had on average 7 more years to run on their present franchise and the core of the problem was a premature termination of the franchise by a new federal demand. The FCC's terse answer published in CATJ ran like this:

"You certainly have problems all right ... but perhaps if these cable operators had taken better care of the local community relations, there would have been no problem."

If the existing cable system problems had been of their own making, and the cable system refused to correct the problems, it would have been impossible to argue with the FCC's reasoning. But what the FCC apparently did not envision was the human side of forcing all cable firms to start over with their city fathers by a certain date. Cable was experiencing the first wave of Amos 'Bud' Hostetter 'promises' to cities, as newspapers and magazines were filled with reports of how firms planning to wire large cities such as Dallas or Boston were promising "100 channels, first run movies and sports, two-way telephone, remote reading of your electric meter and personal alarms to notify the police or ambulance service" - among other 'blue sky'. This 'crowd' of people either knew very little about cable's technical limitations (remember - this is 1976!) or knew but believed they could make such promises to a local city council and thereby gain a franchise - but after the fact not have to deliver what they promised. It was an ugly situation and after listening to a 'blue sky' proposal at several city council meetings, I was anxious to stand up and 'refute their promises'.

It usually went like this. I started by placing a stack of CATJs on the table and explaining what my job in life consisted of. Then using copies from CATJ articles (previously prepared as handouts) I would walk around the room while talking and pass out copies of the material which basically gave the council members something to read while I talked. The material was carefully chosen to illustrate the 'true state of cable technology' at that point in time, as well as into the foreseeable future.

"Reading your electrical meter?" No. "Two-way (low cost) telephone?" No. "A panic button to summon the police or ambulance?" No. "First run movies?" Perhaps, from HBO but were they first run? No, they were quite old as a matter of fact. "A local TV production studio so the mayor could be on TV?" Again, perhaps but couldn't the existing cable operator do this - and HBO just as easily?

Then I made a point nobody there had considered. If the city turned down the request from the existing cable operator, the new guys had until March 31, 1977 to replace the existing system with a new one they would have to build. Was there room on the utility poles for a second system of cables? "No" was the usual answer. But before the new guys could build the system they, too, would require a CAC from the FCC. And the FCC was routinely spending upwards of a year even getting to newly filed CAC applications not to speak of considering it. So what would happen on March 31, 1977 if the new guys were given the franchise and the old guy's permit expired on that date?

"No TV at all. From anyone." How long might that last? "A month, two months, possibly a year." Would the people who presently had cable in town be pleased with the council if they had to go months or a year with no TV at all? Dead silence in the room.

In some towns I also mentioned several pending law suits challenging the CAC process and further challenging the right of a federal agency to come along and invalidate 'contracts negotiated between communities and cable operators'.

"Suppose the feds came in here and told you that effective next year your city water mains had to meet a new federal standard. And you found it would cost the town $1,000,000 to do this. And then the feds told you that if you did not do this, federal marshals would appear at your water works and turn off the water supply - until you upgraded the system?"

More dead silence.

Alas, I was one guy and although CATA sent a 'Heads Up' memo to all members outlining what might be done when 'blue sky cable promisors' were banging on the town's door, this horse was out of the barn. Gridley was the best challenge we might ever have to deal with the FCC's arbitrary cancellation of all cable franchises on March 31, 1977.

Staff artist Richard Montgomery was a major asset as CATJ dutifully kept the industry apprised of all of these developments. Richard had a cartoon skill which was extremely professional. As a consequence, CATJ from November 1975 had developed a unique front cover style. As a student of history, I searched for examples where prior-art-art had captured an image in such a way that Americans instantly recognised the origin of a particular drawing. After 'experimenting' with the marriage of photographs and cartoony art editions in November and December 1975, Richard hit his stride in March 1976.

Almost every American had seen and filed away in memory the photo taken on Iwo Jima as a small force of Americans raised the flag there during World War Two. I sketched my version of that for Richard - four men (obviously cable TV technicians or engineers) straddling a hilly mountain top raising not a flag but a metal mast supporting a television antenna at the top. Their faces showed the same 'determination' as the original photo (and numerous artistic copies) at Iwo Jima.

Overlaid over the drawing were five paragraphs reprinted from an exciting new report. Congressman Torbet H. MacDonald had written to CATJ in April 1975 responding to our two epic issues which had traced the 'mishandling of television and cable' by the FCC and CATJ

published his responsive letter as evidence that we had 'hit our own mark' with the two special issues. In his published letter he promised a set of hearings and a report from the Subcommittee on Communications for the Committee on Interstate and Foreign Commerce.

Unlike similar promises, this Subcommittee *did* study the issues raised by CATJ and then issued a blistering 110 page report entitled, 'Cable Television: Promise versus Regulatory Performance' (which) echoed almost word for word CATJ charges of one year prior. The five paragraph summary appearing as text over the top of the Richard Montgomery 'Iwo Jima' look-alike read:

"...In 1952, the Federal Communications Commission (FCC), acting under a broad mandate from the Congress, proposed a blueprint for the future of American television.

"...This television allocation plan has guided the regulatory decision making process for the past quarter of a century. It has never been critically re-examined (by the FCC) or significantly questioned by the Congress. But experience ... with the basic blueprint ... has revealed a number of flaws.

"First, the FCC was relying on a basic television technology which is single-channel, one-way, mass-message, and supported by advertising revenues. Yet ... it is apparent the FCC seriously underestimated the size of the population base necessary to support a commercially financed television station.

"Second, the FCC erroneously intermixed UHF and VHF channels in the same market and has taken no action to remedy the confused pattern of allocations which has resulted. The consequence has been an artificial scarcity even in the major markets of television programming diversity.

"Cable television has developed largely in response to these flaws in the FCC plan. In the period from the late 1940s to the 1960s, cable brought much needed television service, especially the missing network programming, to the sparsely populated areas. But in the 1960s a new form of cable developed, aimed at the second flaw in the FCC's allocation plan - namely, the failure to provide adequate service in the major markets. This threatened the large profits of the television broadcasters in these markets, since it would undermine the artificial scarcity upon which those profits are based ... and the broadcasters reacted with all-out opposition to this new form of cable..." .

Montgomery and I were on a 'roll'. My office was wall papered with famous paintings / prints depicting various 'moments' in American

history. And this was, after all, the 'American Bicentennial' year. One was Colonel Teddy Roosevelt leading a charge up San Juan Hill on July 1, 1898 near Santiago, Cuba. Richard's recreation replaced 'Teddy' with Kyle and four other front riders with caricatures of other CATA cable personalities. "Our Cover" explained, "Any resemblance between these five patriots and persons now in the CATV industry is intentional!"

Another researcher who found the March and April (1975) CATJ studies of FCC bungling of American television informative had created his own solution. Professor John M. Kittross of Temple University had begun with CATJ, back tracked through FCC files and now had his own proposal to eliminate the 'artificial scarcity of (TV broadcast) channels' which had caught the attention of MacDonald's Subcommittee. "A modest proposal for American Television" appeared as our lead article (April 1976) and I felt compelled to advise readers, "This is not an April Fool's article." Kittross had reworked the entire FCC (1953 finalized) TV channel allocations scheme based upon an approach proven in Europe. In the United States, the FCC had assigned TV channels to cities while attempting to maintain minimum mileage separations between stations operating on the same TV channel (such as channel 2). In Europe, the planners had ignored cities and overlaid the continent with a rectilinear 'grid' with 170 miles (the distance between stations on the same channel) between each grid crossing. In the USA, TV broadcasters had built their towers where they could reach the largest body of viewers with the strongest possible signal. Kittross, finding the FCC system 'wasteful' and 'spectrum inefficient', proposed that with his precise grid system every home in the United States would have off-air reception from no fewer than 7 (VHF) channels and in most cases 12 (VHF channels).

If UHF channels were added to the plan, 34 TV channels could transmit from each of his 'grid defined' locations, producing for every home in the country access to the same number of channels. Of course the plan was doomed to failure. But not for lack of attributes. It was not 'perfect' but as observers would write to CATJ in following months, "If on a scale of ten the present FCC system was rated as a 3, Kittross would rate an 8." Alas, not one of the existing commercial broadcasters wanted, (1) to be forced to move their transmitting facility to a remote spot defined by a grid map, or more important, (2) suddenly have twice as many competitors in their marketplace! Actually, for cable, it would have been a tremendous boon - setting aside the FCC's decision to regulate cable. By placing the transmitters at geographic co-ordi-

nates defined by a 170 mile grid, most TV transmitters would have ended up 30-50 miles from the cities they sought to serve rather than in the suburbs. Which of course was what cable was all about; making 'distant' signals 'look good'.

Artist Montgomery had his own 'collection. of cartoons lining his office wall. His favorite cartoonist had been Bill Mauldin, famous during World War Two using his own 'Willie and Joe' style of American GI caricatures. One caught my eye; an (enemy) tank overrunning a GI forward observer fox hole with the tank parked directly over Willie and Joe. The guy on the radio was warning of the enemy approach. Richard redrew it in his own Mauldin style (which he did with considerable skill) and now the radio operator was saying:

"Hiding the headend underground didn't fool them Kyle ..." FCC and 'CAC Office' was plastered all over the tank and in front of the GIs, a sign post that simply read, 'Gridley'. There was no way the FCC could ignore Kyle's challenge. The same issue was 'sprinkled' with Mauldin-like cartoons prompting Montgomery to comment, "It is infectious - once you start drawing his signature format, it is almost impossible to stop!"

CATA Trade Conference

Manufacturers, trade suppliers, were in the third year of serious depression, all traceable to the FCC. One, Theta-Com, a division of no-less than Hughes Aircraft, would shut down its cable TV amplifier business in 1976, a victim of the FCC. There were two bright spots - satellite systems and test equipment. But with satellite systems still costing $125,000 and up, while business was brisk the number of systems large enough to afford this step was going to rapidly end. Test equipment was another story. Mid State Communications and Wavetek Indiana - both of Indianapolis - were designing equipment for smaller systems, where the bulk of the market existed. But the equipment pricing was low and profit margins thin.

When a cable system entered the HBO-pay-movies world after installing a satellite dish, they had to immediately invest in (cable line) descrambling equipment as well. A host of smaller firms announced 'pay TV traps' which were the devices used to 'clear up the scrambling' when a home opted for the HBO service. Cable systems were selectively expanding their channel capacity, beyond the 12 which had been practical for more than a decade. The next step after 12 was some number between 21 and 35. To add these new channels the cable system had to be totally rebuilt from headend to end of system. And into each home went a cable set-top box ('converter'). All of this 'activity' foretold of huge sale days ahead for the equipment suppliers but until the FCC uncertainty was settled, it was at best a 'future' hope.

Into this CATA dropped my latest scheme for industry cohesion. The second cable TV trade show I attended was in Seattle, Washington in 1962. In that era, trade shows were 'table top' display affairs and

manufacturers seldom had something more elaborate than a couple of 2 foot by 6 or 8 foot tables overlaid with equipment and literature. Over the decade that followed, trade shows became more reflective of the size and importance of key suppliers and some 'booths' were actually larger singly than the entire 1962 'national' trade show in Seattle.

What this did to the industry attendees was create a false sense of hype which in my opinion was increasingly over shadowing the reason we as an industry held trade shows. The 'trade' potion had definitely become the tail that wagged the dog. With that went an entirely new layer of politics between the show organizer and the suppliers.

"Who gets the big display space by the front door?"

"I want 100 extra square feet for my antennas, outside, in the parking lot."

"We want to hold a cocktail party on the first evening at 7PM. OK, that's taken. 8PM?"

And something else was happening. Where in 1962 trade shows were built around hands-on demonstrations involving new technical techniques or usually frank panel discussions where 'honesty' ruled, by 1976 there was a long list of political and regulatory 'big wigs' who all but demanded 'time on the podium'. I was, when all was said and done, a 'back to basics' kind of guy.

CATA would do it differently (but hold on for 1977!). Now, putting on a trade 'seminar' (our preferred word) was one hell of a lot of work. I knew, had done it before and after I exited cable TV would do it for as many as 10,000 attendees at a time during my 'satellite TV years'. My safety valve was Celeste Rule, one of the brightest people (man or woman) I have ever known. Celeste had a knack which few possess - she could jump into a pot of totally disorganized stew and a few minutes later all of the carrots, all of the peas, all of the - you get the idea - would be lined up, saluting. Celeste was 'Managing Editor' for CATJ but unofficially she ran CATA with an iron fist. One of her unique qualities was the ability to permanently remember names and faces, even voices on the telephone. Calling CATA or CATJ 'for the second time' immediately got you in touch with Celeste who treated you as a member of the family and old friend. I can't resist this - when one called the NCTA, the British accented telephone lady (they always hired a lady with a British accent!) was cold as a fish and about as helpful as a dead flounder. It was part of their image and Celeste was part of ours.

Celeste took to helping me monitor the details of the 'CATA Seminar' immediately. She loved 'big parties' and with up to 500

coming, this one would be more than the usual Catholic Church clam-bake - with which she had 50 years of experience.

Some comparisons. The NCTA charged attendees $200 in 1976 to attend their Dallas 'annual'; our fee was $25 for CATA members and $40 for non-members. NCTA charged hundreds of dollars per square foot of exhibit space and the big guys dominated. CATA put everyone back on table tops and they paid nothing for the entire table grouping; no charge! NCTA allowed exhibitors to sponsor events, we held bar-b-ques because strange of all strange rather than scheduling the event for a major city hotel and its attached display and meeting halls, we 'hired' an entire Oklahoma State owned and operated 'lodge'.

Oklahoma's man-made lakes had been the 'grounds' for a past state administration using tax-payer funds to create state parks equipped with enough guest space to accommodate up to a few hundred people. Right there, around the lake, under the tall trees, surrounded by tens of acres of green grass, tennis courts, swimming pools. Moreover, where double occupancy rooms in Dallas went for $150 a night, Western Hills Lodge (Wagoner, Oklahoma - near Tulsa) was a more modest $50.

Going way out on a limb (or so the CATA board thought at the time) we reserved the entire place for the period of August 9-10-11 and signed a contract guaranteeing the state income for that period.

My concepts for a 'seminar/trade show/conference', which would be totally different from anything the NCTA did (or had ever done), started with the sessions. CATJ response was my guiding light. By far and away, the 'do it yourself Laufer spectrum analyzer' was the hit report of the past 12 months. Everyone - absolutely every technical person - longed to have one. But most were afraid to tackle it on their own. I called Jerry Laufer in San Jose and 'pitched' him.

"Want a free trip to Oklahoma?" I began. He admitted that was not high on his list.

"How about this...?" and I explained the plan. With the help of Steve Richey, we would package together total kits of every part required to build the gadget. Including the cable TV set-top converters.

"Now, you spend a day helping people who will bring their own soldering iron, their own hand tools, put them together. When we are done, there might be 10 guys who leave with 'your analyzer' tucked under their arms."

He was concerned 'these guys' would have no real expertise in even soldering. I offered to round up two, four, six - whatever it took - 'mentors' to walk around the floor and assist.

"We'll do it step by step and I will put together a manual they follow, you starting with page one where they unpack their parts kit and everyone does the same thing at the same time."

He was intrigued. And hooked. He admitted, "I have probably never met 10 guys who know how to use a soldering iron in this industry since I joined it - this could be fun!"

Indeed it would be and was. And more than 25 (!) people signed up for the course and paid their $45 for the kits and day-long Laufer course. And every single one of them left with a working spectrum analyzer, most by early afternoon. The report of their success appearing in CATJ for September included a new promotion for the complete kits - hundreds sold.

A spectrum analyzer, commercial, cost close to $1,000 for a 'cheap one' which in fact did nothing any better than our $50 mail-order kits. This course alone brought people out to the CATA 'seminar' who would admit to Celeste on the telephone, "I have not left my cable system in five (seven) (ten) years!"

In fact, the more than 450 who did attend were, in the majority, people who seldom (if ever) left their cable systems. For many this was a hardship and most drove from such far away origins as Vermont, South Carolina, Kentucky and even California to be on hand.

To compliment the Laufer session, which admittedly appealed to an enthusiastic but minority of the attendees, we 'went back' to the 'real basics': How to design a small town cable system. How to make FCC tests with a minimum of equipment. How to approach the bank for a loan to cover the tremendous costs associated with 'making FCC compliance'.

One of my favorite ham radio activities was (and remains) measuring antennas. I was, still remain today, an 'antenna freak'. Well, at any decent ham-fest there is an event that always attracts me. The brightest hams create an 'antenna test range' to actually measure the performance of ham antennas. Why not do it with cable TV antennas? When we were done, everyone there would understand how antennas were designed and after 'test range measurements' - which ones worked best. There were some very nervous antenna manufacturers standing around the periphery of that outdoor, blazing sun, day-long crowd!

Everything about the 'seminar' was hands on. We had a few sessions where people sat in chairs and listened to one or more people give advice (such as the bank session which featured real bankers explaining what to say, what to be prepared to answer, and why). But the majority were 'touching, feeling, and asking question' sessions.

I had coerced Steve Richey into emptying his test equipment lab and bringing it to Wagoner. There he set up in a room with an equally qualified engineer named Hansel Mead from Florida's Q-Bit Corporation and for three solid days they 'aligned' and repaired attendee's cable amplifiers - free of charge. Hansel and Steve never got out of 'their lab' before midnight (3 AM the last night) - fellows kept bringing in boxes of amplifiers which required maintenance and which, for most of those attending, they had not the slightest clue how to repair. A side effect of this was a burst in sales for test equipment manufacturers in attendance - once a cable operator saw (from Richey, Mead or both) 'how' to trouble shoot, repair and align their amplifiers, they were anxious to go home and continue doing it themselves with newly found skills.

The hit of the seminar was satellite. By now I was firmly convinced the FCC's '9 meter or larger regulation', which meant they would not even consider an application for a satellite terminal using a dish antenna smaller than 9 meters, was total political hogwash. Quietly I had built my own system (without a license) and I had real world 'hands on experience' with dishes down to under 2 meters in size. But this was not the time nor place to reveal that.

What Kyle and the CATA board wanted was a change in the FCC rule to allow 'dishes as small as 4.5 meters' to be licensed. In June, CATA-counsel Rick Brown and I had drafted a 'Petition for Rule Making' which was filed with the FCC. We were seeking FCC agreement that 9 meter (or larger) satellite dish systems were really not necessary. Of course what I (really) wanted was no license at all. When CATA's show opened, there were two dishes - both in the 4.5 meter range - set up on the parking lot, secured with sand bags so any sudden wind storms would not topple them over.

The FCC was defending their '9 meter and larger' regulation by insisting anything smaller would not produce reliable pictures. I was sorely tempted to reveal my 1.83 meter experience but held off - the 4.5 meter guys were showing off with portable TV sets at their antennas (and on their display table tops) 'perfect' HBO images along with pictures from a handful of 'experimental' tests (CBN of Pat Robertson fame was one of these) underway by a number of early satellite users not related to cable TV. For virtually everyone in attendance, the 4.5 meter dishes, *working*, 'completed the loop'. CATJ's series of articles had whetted their appetite to enter the pay-TV era and now they had seen it work, watched intently as the people from Prodelin and Andrew assembled their dishes (we had suggested those so-interested 'come a

day early' to learn 'how to assemble a dish' on their own at home), ran their hands over the dish surfaces and touched the controls on a receiver. Not one of them would sleep soundly until they had their own dish system at home.

Within the satellite seminar segments, a would-be cable operator named Cliff Shrock guaranteed his place in history. Cliff was an engineer with Portland (Oregon) test equipment manufacturer Tektronix, which helped his effort. He had built his own dish system, totally from scratch, and after discussing it with me agreed to speak and explain what he had done. Now, having Tektronix 'down the road', so their special high grade test equipment and technical 'geeks' were available for Cliff to ask questions, played a big part in his success. But Cliff fired up those with extra skills by proving 'it can be done' even if the results (he frankly admitted) were inferior to what the commercial guys were showing off 'in the parking lot'. Schrock also contributed a word to satellite lexicon that remains with us today.

When a terrestrial TV picture has 'noise' visible, we say it has 'snow' because the dancing white dots remind one of a snow storm. But a satellite signal that is weak has a peculiar form of 'snow' and that word is simply not descriptive. Cliff decided they looked like 'sparklies' (imagine a diamond sparkling in a bright light) and described his system performance in terms of 'how many sparklies' (white and black bits dancing on the screen) he saw. Nearly thirty years later, they are still 'sparklies'.

89% of those attending filling out end-of-seminar questionnaires rated the event, "Fantastic, best show ever." Not one said it was a "bust" or that he would "not come again." CCOS '77 was already a 'sell-out' and it had not even been announced.

Prologue to 'private' home dishes

Dana Atchley, Jr. was Chairman of the board of Microwave Associates (to become M-A Com). This was your nice (no longer) little Boston/New England high technology firm but it was a most unusual firm. Chairman Dana was a ham radio operator and although he was in charge of a multi-hundred-million dollar firm, everything about his life revolved around two fascinations:

1) Wind surfing, and,

2) The afore-mentioned amateur (ham) radio.

Through the years Dana had followed an engineering management philosophy which modern management would frown upon. If the guy he was considering hiring was a ham, and had shown special skills as a ham, he was several legs up the ladder with Dana. No doubt there were many non-hams of equal or greater skills who could have made significant contributions to Microwave Associates. But their chance of getting hired was extremely slim, at least for a top engineering position.

I had contacted Microwave Associates in mid-1975 concerning a 'ham radio' product they were manufacturing in very small quantities. It was known as a GunnPlexer and what it did was transmit and receive microwave signals. The GunnPlexer (GP) did not care if the transmitted signal was a single voice channel, Morse code (CW) or heaven forbid - television. Their primary market for GPs was firms building police hand held or vehicle mounted radar devices - the kind that said 'gotcha!' when you were caught in a 'speed trap'. The fellow who answered my innocent query was J. Duke Brown, a sales engineer for MA and of course a ham. Over the next 36 months, Duke would

become one of my dearest friends.

He put my name and CATJ together and took my request to Dana Atchley. It is not very often that you ask about a product and the Chairman of the Board of a multi-hundred-million dollar concern answers with a telephone call. So I was introduced to Dana.

I had a wild concept about using the GunnPlexer for very low cost CATV microwave links to forward TV channels from a headend to perhaps 10 miles away; I had Steve Richey working on some developmental circuit boards. Dana listened to my concept and then surprised me by urging, "the next time you come east, come to see me." I did in early 1975 and was not only met at the airport by Duke but was immediately ushered into the Chairman's quarters where a group of the best microwave engineers in the world were waiting. I, of course, was flabbergasted. Microwave Associates was the nearest one might get to Nirvana in 1975 and I was not only there but shaking hands with legends I had worshipped for a decade or more. It turned out every fellow in the room was a 'fellow ham' and they had a several day 'plan' for my visit.

It began with an evening trip to Dana's home and his ham radio station. Nobody but a ham will appreciate what follows. Dana dialled his Collins 75A4 receiver to a frequency in the 75 meter band. It was totally quiet; in and of itself most unusual. He pushed a button to select a particular antenna and then picking up the microphone said, "John, good evening."

"Dana, how was your day?" Were it not for the unmistakable British accent, the chap on the radio could have been next door. Dana introduced me by my ham call, identified me as a "visitor in the 'shack'" while MA's chief engineer, Fred Collins (not related to the Collins brand receiver) took me on a 'shack tour'. Dana had the latest everything but almost all of it had been 'home brewed' by Fred or another MA engineer. Dana's transatlantic British friend on the other end was nearing beddy-bye time and made that comment to Dana who signed off and joined us.

Fred was explaining to me a 'new sideline' he was operating 'on the side'; something he called 'Bi-Square' antennas, which Dana was using to talk to the British ham.

"That's why he is so strong, like a 'local'," explained Fred. Perhaps, but if this guy was strong, I wondered how much 'louder' Dana was in England using the particular transmitter he had on line. Broadcast stations in New York City (or Boston) were less well equipped and possibly used less power than Dana's 'final amplifier' was creating.

There were obviously some nice 'perks' associated with having the finest engineering staff in leading edge electronics who, by less than happenstance, also were ham radio operators. It also didn't hurt that they could 'order in' virtually any component part they wished for Dana's ham radio station under the guise of it being 'something for a Microwave Associates' project. Plus of course, as chair of the firm, he was undoubtedly well paid.

Yes, I was impressed, which was possibly the reason for the visit to Dana's home (something that would grow over the years to having 'Coop's bedroom' during future visits). Fred Collins, amateur W1FC, whereas Dana's call was the reverse - W1CF - didn't want to talk GunnPlexers ("plenty of time for that tomorrow") but he did have some questions about 'small satellite dish systems'. I would shortly work out why.

Now Microwave Associates, although a major supplier of complete microwave transmitters and receivers and total (turnkey) systems, was primarily a 'parts house' in those days. They created the parts, in Fred's bailiwick, which became the raw materials for other firms to turn into complex and very expensive systems; such as the GunnPlexer police radars. Raytheon, S-A, RCA, GE - every firm of any importance depended upon the research and development at MA to design the raw parts they would in turn use to create $100,000 boxes. Dana's 'interest' in my concepts for the GunnPlexer was, I thought, along that line. I had a new application, one that had not been commercially exploited to date. Early on I had pointed out that the FCC probably would not allow low-cost microwave to operate because there were no frequency bands available for it outside of a ham radio band. Dana had smiled and Fred had chuckled at my point. They didn't spell it out but the message was clear - 'Create the equipment and leave the FCC to us'. Indeed.

My first visit at MA was to get acquainted. It took three days and two nights to do that and I had to explain and re-explain and re-re-explain again my GunnPlexer concept to a steady stream of engineers, sales-engineers (emphasis on sales), and 'product managers'. It all seemed a little too much to me at the time, busy guys, paid more per month than I earned in a year, taking a day or more out of their lives to listen to a cable TV magazine editor from Oklahoma.

On the last day Fred Collins took me aside as I was within an hour of leaving.

"Talk to me about this small earth terminal business," he began. At the time, I had my own 12 foot terminal running at home and told him so. He smiled and just before I left took me to a side yard where

I saw a 15 foot terminal of his own design. Also running, he told me.

He asked, pointing at the antenna, "How small can these get with the present generation of satellites?" I then told him about my 6 foot antenna work, the first person outside of a very small click in Oklahoma I had shared that with.

"I thought so!" he exclaimed. And we talked about the fast developing world of LNAs and how the new GaAs-FET transistors could make 6 footers ("or even smaller," Fred suggested) practical.

"Let's stay in touch on this - but you talk to only me or Dana about it. OK?"

OK by me.

I went home with a suitcase filled with GunnPlexers (Steve Richey was about to be very impressed!) and something quite unexpected - a very much laboratory produced GaAs-FET LNA for satellite TV. It would be six months before I saw a commercial one and in the rapid changing microwave world, six months was an eternity.

"Tell me how it works and when I get a better one, I'll ship it out" promised Fred. He, of course, had sourced the transistors from the very highest level of a Japanese firm and built the amplifier in his private work area. I doubted very much at that point in time there was a better (more sensitive) one anyplace in the world. And so began my relationship with the premier designer and manufacturer of microwave equipment in the world at that time. My life would be forever changed.

Over the six months to CATA's CCOS '76, I talked with Fred and on occasion Dana perhaps once each week. Fred, good to his word, cycled new LNAs in my direction and I returned the prior received version to his personal attention. Each one was better than the predecessor as the GaAs-FET quality improved. Hams are pretty unusual people. Fred as Chief Engineer of M-A could go to another ham who was Chief Engineer at Fujitsu, for example, in Japan and between them little boxes of parts would flow. The Japanese engineer would literally go out onto his production floor and direct his people to "select the six best GaAs-FETs we produce this week" which in turn he would send to Fred. No written records, just ham to ham ("Hiro - are you there?"). That put Fred months ahead of any 'insider press disclosures' concerning the progress in GaAs-FETs and by the time '*Microwave Design*' or some other prestigious trade journal knew about the latest advances, I had the Japanese-origin transistors sitting in a Fred Collins' created circuit board on my 6 foot dish.

I knew better than to share this knowledge with anyone but did have to hide the performance of my 'tiny six footer' from prying eyes.

While Tom Humphries was struggling with LNAs using bi-polar transistors at SCI, I was 'already there' with perfect pictures on my six foot miniature dish.

GaAs-FETs in the early days sold on the basis of their performance. If Fujitsu created 1,000 transistors, perhaps 2 or at most 5 would be truly special. In the open market, for firms building LNAs, this tiny handful cost upwards of $500 each. An LNA used two, three or four. After purchasing the 'truly special ones from Fujitsu', firms such as SCI would very carefully and very nervously manufacture an LNA around them. If the completed unit tested as they expected, they could sell the assembled LNA for $5,000 to $10,000 where the 'normal' ones would fetch $2,000 maximum.

Where all of this was headed became crystal clear to me by mid-1976. Dana Atchley wanted Microwave Associates to be the first, and the largest, seller of 'home' satellite dish system. We'll return there.

Through the fall of 1976, post CCOS '76, the CATA and NCTA name calling escalated. Kyle urged the industry to 'mend fences' and "stop feeding the press with alarmist statements." He believed that "polarizing the industry was unhealthy" and suggested in his November CATA-torial that CATA and NCTA begin holding private meetings involving Board Members from 'both sides'. For their part, NCTA was having difficulty 'recognizing' anything CATA did or attempted to do. It was about to get much harder.

When Rick Brown and I sat down in June to write a 'Petition for Rulemaking or a Declaratory Ruling' (which we presented to the FCC on June 24, seeking a change in FCC rules to allow smaller satellite dishes), this was an official action that the FCC could not duck. Up through June, the FCC was repeating their now old and tired explanation detailing why cable (and other) satellite receive-only systems must be 9 meters in size or larger. But I had done some digging, and with the help of a friendly and sympathetic 'mole' inside the FCC, had discovered the Commission was already granting receive terminal licenses to dishes 4.5 meters in size! Worse than that, they were denying they had done so.

Exxon had filed applications for and received FCC approval to install 4.5m dish systems on oil rigs located in the Gulf Of Mexico 'Outer Continental Shelf'. Reason? To supply television to divers and rig operators. Exxon told the FCC in a private filing it was, "spending upwards of $25,000 each year to videotape and bicycle TV programming to shelf personnel - per rig." There were more. Cities Service had followed the Exxon example and also had gained FCC 'licensing' for

offshore rigs. RCA Alaska then filed and gained approval for transmit *and* receive 4.5m terminals at a time when the FCC was not even accepting other applications for 9 meter transmit antennas. I published the detail of all of this (CATJ June 1976, page 47) and the Commission was caught red handed engaging in favortism to major firms.

CATJ's revelations shone the spotlight of publicity on the FCC's duplicity. But that period of embarrassment had a way of being 'yesterday's headline' and seldom lasted long enough to dent their thick skins. When I was in Washington late in May, it was for a dual purpose. Congressman Lionel Van Deerlin was holding hearings for the House Subcommittee on Communications, the promised follow-up to that group's 110 page report issued in February and the subject of our March 1975 CATJ cover. CATA counsel Rick Brown, Kyle and I were invited. Well, they were invited, I tagged along. Rick was showing reasons why CATA paid him so much money each month by bringing Kyle and tagalong me into Washington two days early for 'rehearsal'. Kyle was to sit in the witness chair and respond to questions. Here is how those things work.

Rick had made it important to become buddy-buddy with the legislative assistants and aids to Van Deerlin. The day we arrived, the three of us went into the bowels of the House Office building and had a 30 minute meeting with the aids. One was an attorney and he and Rick were obviously past the hand shake stage. Kyle was instantly recognised by these folks (they were reading CATJ each month, by now) and I was introduced.

"Here's the questions," said Rick, handing several pages over to the attorney. They sat on the corner of a dark wood walnut table and the attorney read aloud with Rick reciting silently in union each question.

"Are you ready?" asked the attorney of Kyle. Kyle, in his Oklahoma honesty, admitted he was not.

"That's OK, Rick will coach you before it happens." Some small talk and we left.

Outside, I blurted out, "You mean these guys take questions from us and we rehearse the answers?" I was learning.

"The final report is a foregone conclusion," Rick began. "The hearing is to create a written record that supports the 110 page report. From the hearing record and the report, the Subcommittee will draw up a bill to present to the house. We have a long ways to go but at least it is started."

For the next 24 hours Rick lived with Kyle and I. In his office,

walking down the street, in our hotel room; Rick fired off the questions and Kyle practiced his answers. By the evening before the hearing day, both were satisfied Kyle knew his 'lines'.

My role in this was to help Kyle frame his answers since many of the questions involved statistics which I knew by heart. Over 'the last supper' Rick hit me between the eyes.

"OK, now we go back to your room and we start on you." Up to this point I was planning to sit in the gallery, well out of view.

"No, you will sit directly behind us. Kyle and I will take our seats at the witness table and you will be maybe five feet behind. But there will be a point where I will motion you to slide your chair quietly forward and sit between us."

"Why?" I asked.

"This is why," said the attorney handing me a folded sheet from his pocket. I read six new questions which I had not seen before. Kyle was smiling; he obviously had been discussing it with Rick.

The questions were very specific. Their purpose was to describe to the Subcommittee the FCC's reluctance to deal with satellite dish system applications using antennas smaller than 9 meters.

"I arranged today for Van Deerlin to deviate from his list of questions to Kyle and ask that first question you see. At that point I will answer for Kyle and suggest that you, as the expert in this field, be allowed to testify on behalf of CATA."

I repeated, "why - why me?"

"Last night the attorney we met (naming him) spent ten minutes reading page 47 in this month's CATJ. When he got to the part about Exxon, Cities Service and RCA already getting FCC approval for 4.5 meter dish terminals, he saw red. He wants you to accentuate that for the Congressmen. And he promises we will be pleased with what happens next."

Kyle was doing beautifully and on cue Rick motioned me to slide my chair into position. Also on cue Congressman Van Deerlin asked the key question which Rick had written and first shown to me the night before. And Rick answered, "Mr. Cooper is our Executive Director and Editor for the industry's technical magazine CATJ. He can answer your questions."

Show time. Only the written record remembers what I said or how I said it. One tends to be running on adrenaline at such times and while Kyle and Rick were congratulatory after it was over, I had to wait two months for the published record to really 'see' how I did.

But I did remember and will always remember the response of

Congressman Van Deerlin.

"I am hereby directing my staff to launch a formal inquiry to the Chairman of the FCC as to why there is a need for this '9 meter business'. I want this expedited and the inquiry should make it very clear I expect an answer shortly."

What I had painted, it turned out, was a deepening division between the rural folks served by small town cable and the big city folks who were already receiving cable programming through satellite. I emphasized the cost differential between a 9 or 10 or 11 meter terminal and one 4.5 meters in size, "or smaller". I even let slip, in my emotion, a hint about "dish systems much smaller than 4.5 meters, being possible".

Walking out of the House Chambers Rick poked me in the side and whispered in my ear, so Kyle did not hear.

"Is there something you have not told me about your home terminal experiments or were you just carried away with the moment?"

It now hit me what I had said at the end of my testimony. And I didn't want to mislead Rick nor engage in a conversation about 'home terminals' in front of Kyle.

"Well, you get this through the FCC and if you do it correctly, so we have no licensing and no size restrictions, then I'll tell you about it." The entire satellite revolution was now firmly entrenched, even in Washington. The world was changing, a direct result of the joint efforts of a tiny group of people that just happened to include me.

December 15, 1976

FCC Chairman Richard E. Wily was leaving the FCC for private practice (CATJ's artist Montgomery would miss his distinctive caricature which by now he had made infamous with cartoons). Wiley would join a prestigious law firm and represent broadcasters before the FCC. Very comfortable, indeed. In the last formal FCC meeting before his departure, two cable items appeared on the commissions agenda. I'll save the second one and divulge the first.

As soon as the record was published (it would be January 7th, allowing for the holidays), cable TV satellite dishes no longer had size minimums. Yes, they still required a license (my next challenge) but due in large measure to Congressman Van Deerlin's pressure and - this is key - Richard E. Wiley's desire to appear 'approachable' as a private attorney to cable interests after leaving the Commission, the 9 meter rule was history.

And the second ruling? Recall all of the problems that had flowed from the FCC's demand that every cable system in the nation return to their city fathers to request a new, FCC-sanctioned-language franchise. Well, for now the March 31, 1977 drop-dead date was postponed. The slime balls who were challenging FCC-mandated franchise renewals with new 'blue-sky' applications were put on ice - at least for a little while.

The FCC said the change in satellite TV antenna size rules was in direct response to the CATA petition Brown and I wrote and filed late in June. They cited our filing, answered our questions point for point, and then erased the rule. Well, that is what appeared to have happened. In fact, it was far more complex, devious, and unruly than this simplistic

summary.

In CATJ for January 1977, I recounted what *really* happened. The front cover had a photo of me holding a small plastic kitchen gadget - a funnel, shaped more or less like a (very) small satellite dish. It was pointed skyward and my eyes followed where it pointed. The front cover headline said, "Small earth terminals approved!"

For some months I had been anxious to launch a new more or less monthly segment of CATJ, to be known as "Coop's Cable Column." In my daily duties I ran across a wide range of issues which demanded (or so I thought at the time) a less 'formal' version of journalism. Having been properly taught the "why, where, when, who and what" basics of good journalism, my CATJ material, while often light reading, always attempted to satisfy those basic criteria. But there were other 'stories' which really required a more informal, non 5-Ws approach. "Coop's" would do that.

"Twinkle-twinkle little bird" was the first. Or as Paul Harvey might have said, "the story behind the story." On the surface there were two formal petitions dealing with satellite dish size before the FCC. The first had been filed by the ABC (television network) folk early in 1976. ABC was irate (a soft word, under the circumstances) that cable TV was 'suddenly utilizing satellite delivery technology and the major networks were not. The three US commercial TV networks had been waiting for their common-carrier (AT&T) to get its' act together, build some satellites (to be known as Comstar) and make satellite interconnection available to them. Virtually every TV station in the nation depended upon AT&T to deliver network programming to their transmitter. The theory at the time was, Comstar would replace terrestrial microwave with satellite and Comstar/AT&T would be the provider.

ABC filed with the commission a petition to, "stop cable TV use of satellites," before, "it got out of hand." When they filed this diatribe, 25 cable systems were already operating or under construction while another 25 were being FCC-processed.

ABC was, I always felt, a 'stalking horse' for AT&T with this petition. If it had been AT&T screaming to the Commission for 'protection' from uninhibited growth of cable, it would have been (correctly) interpreted as one would-be satellite operator (AT&T's Comstar satellites) protesting because two competitors (Western Union and RCA) had become operational first.

ABC's arguments were weak. They urged the Commission not to relax the '9 meter rule' and cited various 1970 engineering studies to request that 9 meters be made bigger - 11 as a minimum, 13 or even

15 more preferable. They based this segment on engineering data of questionable accuracy. Then, 'so as to accommodate cable's needs', ABC suggested, "cable use be moved to the 12 GHz satellite band."

Benevolent. Because in 1977 there was a 12 GHz band but not a single operating satellite for that band (it would be as much as a decade before that happened at a commercial level). You can just picture the ABC and AT&T cohorts in this sitting around a table chuckling.

"If the FCC buys this, we'll get five years or more to work out how to deal with cable TV."

Or the AT&T guys.

"Western Union and RCA just might sell all of their transponders before we get operational - we need to stop this before these two firms become a force to reckon with."

That was February (1976). Now along comes the petition drawn for CATA by Rick Brown and myself in June. CATJ had already revealed the FCC was in fact quietly granting 4.5 meter terminals to some influential firms (Exxon et al). And Congressman Van Deerlin had written a formal letter to FCC Chairman Wiley asking him to explain the Commission's position. Then in August, CATA held its first seminar and the top item on the very visible agenda was 4.5 meter operational terminals. The September 1977 CATJ devoted more than 12 pages to how these demonstrations of small terminals went, and the multiple seminar sessions devoted to teaching and discussing the subject.

"The fat was in the fire." Every argument the Commission had previously used was now rebutted. Moreover, a number of very talented people in this new satellite world had individually begun their own 'camping out' on the Commission's front door step.

One of these was Howard Hubbard of Antennas For Communications (AFC). Howard was different than the rest because while he was producing (and offering to cable systems) a satellite antenna, it was not a dish antenna. Rather it was a 'horn', the same exact design AT&T used on their microwave towers all over the United States.

The root of the FCC's '9 meter rule' was a mathematical equation which the industry was abbreviating as:

32 minus 25 log theta.

What this meant was as follows. To insure that new satellite dishes would not sometime in the future pick up interference from satellites not yet operational (or even planned), the antenna had to have a pinpoint 'beam' or signal pickup zone. Based upon some 1970 Indian (the country, not the American native) technical papers, this 'beam width' or zone of interference could be reduced to a curve plotted on

a piece of (graph) paper. If the antenna in question fell on the inside of that curve, the antenna was operating sufficiently well that even when future satellites were launched, there would not be interference at the dish system.

Hubbard had designed small (10 and 14 foot) 'horn antennas which satisfied "32 minus 25 log theta." But because it was not a 'dish' in the traditional format, almost nobody (in or out of the Commission) was paying much attention. Hubbard had called me on the telephone back in March to 'educate' the editor of CATJ. I was a willing pupil.

"You people (meaning CATJ and CATA) think the sun rises and sets on those darn dishes" he began. When he was through, I was a convert. Horns were obviously every bit as capable of doing what dishes did, perhaps in some situations better, with a small 'aperture' (frontal opening) size.

Hubbard talked a small cable operator (John Panagos for Gaithersburg CATV, Inc., Gaithersburg, Maryland) into filing a formal application with the FCC, using one of his horns. I followed its progress by telephone and each time I was in Washington (which for most of 1976-7 was monthly, often tucked in with a 'clandestine' visit to Microwave Associates in Boston). The fellow in Maryland who filed the application was less than an hour from the FCC and he was visiting them weekly demanding to know why his application was 'not moving'.

"Not moving" was an understatement. The bureaucrats demanded every application include detailed engineering data for the antenna chosen. If you had selected a S-A or Andrew 'dish' antenna, the record was already made. If they had approved one for Ft. Pierce, another in San Angelo (Texas) was going to be the same. But Hubbard's horn was totally foreign to them. Never mind that if a qualified antenna engineer studied the filing he would have to come to one of two conclusions:

1) The guy who filled it out was fibbing, or,

2) The antenna, even for its small size and unusual geometry, did in fact meet their "32 minus 25 log theta" curve.

Nobody at the FCC was qualified to make that determination. So through April, May, June and so on despite the weekly visits from the Maryland cable operator and despite Howard Hubbard's persistence, the application lay buried in an 'in basket'. It was 'too tough' (read, difficult) to handle.

Or, maybe, because it was physically small (less than half the 9 meter minimum for a 'dish') they were simply afraid of establishing a precedent.

Fast forward now to December 7, 1977. I was in Washington, at the FCC, dealing with cable system measurements. An FCC type found me, in a rush, waving a sheath of paper.

"It's here - the Commission has decided to relax the 9 meter rule. It is going around right now 'for comment'."

I found a corner, slumped down to the floor against a wall, and began reading the 32 pages and then the 39 attachment page reference. My heart was pounding - the first page verified what he had said. "No more size limitation!" And it began with the words I most wanted to read:

"In response to a Petition for Rule Making filed June 24 by the Community Antenna Television Association ....".

Page two. My elation was gone. First the document said there would no longer be a '9 meter rule' and then the next page spelled out what the substitute would be. What they had done was create an entirely new set of technical parameters which only someone selling 9 or 10 or 11 meter dishes could applaud.

"14 dB carrier to noise, 18 dB carrier to interference, 52 dB signal to noise."

The new wording was an innovative, admittedly clever, way to spell "9 m e t e r" or larger using new language. But the end result was the same.

If it smells like a turnip, tastes like a turnip, cooks like a turnip .... it must be a turnip. No matter what it "looks like."

Earlier that day, quite by accident, I had bumped into Howard Hubbard in the lobby of the Holiday Inn where I was staying. So I knew he was in town. Unfortunately, our CATA-attorney-cum technical whiz Steve Effros was in Oregon conducting a CATA seminar. It had been Steve calling on FCC personnel almost daily between September and December which had kept the fire burning under the formal CATA petition for Rule Making.

Here was how 'for comment' worked (and still works) at the FCC.

When the full Commission (the body of people charged with the final decision) planned to deal with a new rule making, an attorney at a lower level would, with the assistance of engineers (as required), write the specific language to be adopted. That done, a small group of people with near-the-top authority would go over the draft document word by word, fine tuning it. Then the document was put into formal-eze and 'circulated for comment' to each of the Commissioner's offices as well as any affected 'bureau'. They typically had a day or two to read it, and either protest or come back with their approval.

Then on the formal meeting day (scheduled for December 8) the document would make its way to the top of the pile during the meeting of the full Commission and each Commissioner would have his opportunity to make public comments in support or denial of the proposed rule. In fact, before they got to that document in sequence, everyone involved had already made up his or her mind. The 'public' part (Commission meetings were typically open to the public) was a formality, not unlike the Subcommittee hearings staged by Van Deerlin.

Luck. It was pure luck. When the document went around for 'comment' somebody slipped up and failed to deliver a copy to the 'Broadcast Bureau'. Within Commission protocol, skipping any one on the list was a major screw up

In this case the Broadcast Bureau objected to being missed and so the proposed rule making was put off for one week - until the December 15th meeting. In that week, CATA rounded up everyone who had the ability to deal with this underhanded bit of cleverness and sped them to Washington.

Howard Hubbard, Don Bucher of ITT Space Communications, Inc. and many more descended on the commission with CATA's Steve Effros showing them where to go, who to see, and backing up their arguments with his own skills.

What Effros discovered is there had been a very deliberate attempt by some clever but devious person (or persons) within the FCC to torpedo the CATA petition. Chairman Wiley had told staff to 'deal with it' and to 'make it ready for approval', before he left office (newly elected U.S. President James (Jimmy) Earl Carter was going to appoint his own FCC head shortly). But down in the bowels of the Commission, perhaps under the influence of AT&T, perhaps satisfying a 'debt' owed to ABC, perhaps simply 'angry with CATA' or my CATJ revelations that made some at the FCC look like horse's butts, was a person who knew how to word a rule making very cleverly. First the draft document said 'no more 9 meter requirement' and then couched in engineering phrases which perhaps nobody else at the Commission understood, the new definition - which as it turned out was indeed a different take on 9 meter sizes.

But the cat was out of the bag. We had caught the 'error' and in the week running up to December 15th, were able to convince everyone involved that although the headline might read, '9 meter rule abolished', the fine print would redefine a 9 meter antenna all over again. Was this Wiley's intent all along? I never knew but if I was passing judgement today, I'd say it was, simply because Wiley's post-FCC tenure

was almost exclusively at the service of the major broadcasters. The right hand giveth, the left hand taketh away.

Another very significant event late in 1977. The FCC finally approved a year-old application filed by Ed Taylor of Southern Satellite Systems in Tulsa, Oklahoma. Taylor, ex-Western Union, had convinced Ted Turner of the wisdom of distributing WTCG (Turner's UHF channel 17 independent station) via satellite. Ted Turner personally had actually approached the FCC to get approval to place WTCG on satellite, and had been turned down. Ed Taylor became his more-than-willing 'stalking horse' which meant Taylor qualified under the rules, Turner did not. This was the first move in what would one day make Ted Turner a multi-billionaire. The better news was WTCG, as relayed through SSS, would cost cable operators a modest ten cents per cable home per month, and, they could use the dish installed for HBO for reception by adding one additional satellite receiver. 'Super station WTCG (later WTBS)' would indeed change the way the industry worked.

"Government bureaucrats are zealots. They are sure they are always right and the public is (always) wrong." Kyle Moore's CATA-torial for December 1976 broke what was perhaps the most ugly, frightening cable-TV operator story to date.

Olive and Howard Cushman had grown up in the cable TV business. First as an engineer for the launch of cable TV in San Diego, later as an owner-operator of a very tiny (52 subscriber) system in Hebo, Oregon where Howard combined cable system management with milking cows on a 160 acre homestead. With four growing children, the Cushmans looked ahead to the 'college days' and began searching for a slightly larger cable system located where the kids could attend college while still living at home. They found Sausalito, California, immediately north of San Francisco at the first off ramp of highway 101 after crossing the Golden Gate Bridge.

Sausalito is less than 10 airline miles from the combined 'Mt. Sutro Tower' for the Bay Area's primary TV stations. But it is a mountainous town perched on ledges above the San Francisco Bay, irregularly cut into short streets that lead up steep hill sides and through deep canyons. The southern most portion of the town is significantly shadowed by the terrain, and homes there have essentially no watchable television unless they are plugged into cable.

Howard and Olive purchased the cable system in 1973. The system's originator was named Martin Houweling, a Dutch immigrant to California who in 1958 discovered he could not receive San Francisco television at his home adjacent to the picturesque and touristy Sausalito

waterfront. The town was famous for many things, including being the home of Ms Sally Sanford, the object of a popular song by Glenn Yarborough and the location selected by the 50-60's popular Kingston Trio for their own night club. Houweling was a 'stubborn man' who went out one day with a TV antenna lashed to his back, hiked to the top of a 2,000 foot hill and under a stand of California Eucalyptus trees raised the TV antenna. Then he obtained a 2,000 foot roll of RG11 cable and pushed it over the side. The cable rolled down the hill, miraculously missing trees, the occasional house and finally flinging its empty reel across the street at the bottom. Houweling came back the next day, 'talked with a few neighbors over who's land the cable now laid atop the ground', and with a sharp spade buried it 'a few inches down', if at all. At the bottom he fashioned a connector and plugged it into his TV set. Instant crystal clear reception from each of the then operating San Francisco channels.

The next door neighbor dropped in to see and was flabbergasted. He asked Martin to hook of his set, also. And the next neighbor. And the next.

A business plan was forming. Several hundred homes, all on the 'wrong side of the hill', were victimized by the signal blocking hill. Martin decided he would charge $200 to be hooked to his cable and $2 a month for 'line maintenance'.

Houweling stubbornness extended to his attitude about the local power and telephone companies. Like Ed Parsons in Astoria and Larry Jacobson in Sonora, he wanted nothing to do with anyone of authority. Telephone, power represented 'authority'. So using a sharp spade and a helper, over the next 15 years he extended his lines a few hundred feet at a time searching out cracks in sidewalks, gaps behind sewer pipes, opportunistic chances to 'sneak across a street' when the city's maintenance crew was resurfacing a roadway.

Everything was buried and as Howard Cushman would discover in 1973, after purchasing the 465 subscriber system from Martin, the Dutchman was a 'genius at waterproofing' and 'protecting' his buried system.

Cushman: "Even line splices and connectors installed 18 years prior were absolutely factory new. Imagine being under ground for nearly two decades, wrapped in tape and covered with some sort of concoction the formula for which I never did know - but created by Martin himself."

Sausalito was just big enough that Howard Cushman, with savings and by taking in consumer electronic equipment for repair, would be

able to manage - with wife Olive's assistance - to provide a home base for their college bound children.

Houweling had the good sense to obtain a franchise before crossing too many streets from the community and in 1966 when California's municipalities adopted a new "Uniform CATV Cable Television Franchise" Houweling in updating his own suddenly had the rights to cable all of Sausalito, not merely the southern portion where he operated. His portion had around 2,000 residents while the whole community had more than 6,000.

Houweling chose not to serve the full community. He was content and perhaps knowing the technical limitations of both his system and his 'bury a foot at a time in a handy crack' technique, chose to stay in that portion he had originally launched 18 years prior. Cushman had a similar philosophy.

Shortly after Cushman bought the system, he set out to expand from the nine channels Houweling carried to a full 12. But he promptly ran into a technical problem - Houweling turned out to be a master at maximizing amplifiers. He had stayed at 9 channels primarily because, as Cushman learned to his dismay, "adding a tenth would cross over an amplifier threshold capability point." In other words, too many channels for too few amplifiers.

It was at this time that a new Spanish language TV channel (KDTV, channel 60) began broadcasting in San Francisco. As was the habit of new stations, they went through FCC files and sent letters to every cable TV system within their predicted coverage zones (those 'A' and 'B' signal contours again) 'demanding' the cable systems add channel 60 to their channel lists. All around Howard, a sizeable MSO operator was delivering 12 channels in what were at the time 12 channel capable systems. In their case, they had no room for a 13th channel and if KDTV was successful in demanding signal carriage to the neighboring cable system's 40,000 subscribers, some other channel would have to 'come off' the system. For Howard, a tenth channel meant far more than taking one off although eliminating one of the existing nine was not an option either since each of those nine had the same 'legal' (read FCC dictated) right to be there as KDTV.

Howard and Olive Cushman were caught between a rock and a hard place, just like their buried cables. If they added KDTV, the entire cable plant would have to be rebuilt. They did not have the money to do that. If they took off an existing channel and substituted KDTV, the missing channel would have the legal right to demand being put back on.

Cushman advised KDTV of his dilemma and they in turn got 'nasty' and reported him to the FCC. Now the 'fun' began.

Official letters began to arrive threatening him with 'FCC Administrative Action' if he refused to abide by the KDTV 'request'. Unbeknownst to Howard, two FCC attorneys hopped a plane to San Francisco from Washington to 'poke around his community'. They were there preparing to haul Cushman before an 'Administrative Law Judge' for what was to be a FCC version of a 'court trial'.

System originator Houweling had kept few notes to describe his system, or even where it was located. Cushman bought a 'subscriber list' (465), an undetermined amount of buried (well, hidden in the ground or behind fences, undergrowth or curbs) cable interconnected with an equally unknown number of amplifiers. Cushman, more than a year after he bought the system, was still 'discovering' where Houweling had 'hidden' plant amplifiers, tacked up under people's porches and in one case behind a wall board in the middle of a home at the back of a closet! In some locations Cushman uncovered as many as 15 separate RG11 and .412 aluminum cables bunched together side by side for short distances. A few had signal running through them, many did not. Normally when one locates a wire and does not know where it goes, you pick it up and follow it to the end. In Sausalito, the wires were buried or hidden, they all looked alike and after just a few feet of wire tracing you lost the one you were following anyhow when it made an abrupt turn and disappeared into a culvert or sewer pipe. Shades of Ed Parsons in Astoria!

The KDTV problem. So the FCC spent taxpayer funds and sent two Cable Bureau attorneys on a junket to San Francisco to 'get the goods' on a man reluctant (unable, actually) to obey their rules. Then it formally notified Cushman and KDTV that on June 17 (1976) in San Francisco a hearing would be held. Cushman represented himself and was able to do a creditable job. But the FCC Administrative Law Judge (ALJ), a man named Chester F. Naumowicz, was in the end persuaded that the rules governing cable were more important than the facts peculiar to the case. He ordered that Cushman add the KDTV signal to his system, promptly.

It all turned on KDTV's unique programming, Spanish language, but less than ten hours per day. The FCC had gone to the U.S. Census Bureau and learned that Marin County, the whole county, had 7.2% people who had 'Spanish surnames'. Sausalito, for the purpose of this proceeding, was assumed by the ALJ to have the same 'mix'. Cushman in preparing for the case, had managed to collect 325 completed survey

forms from his subscribers. He had a monthly rate of $6 per home, and was proposing to raise it to $8 in return for growing from 9 to 12 channels. He asked subscribers to 'vote' on which new channels they wished added to the service and KDTV was on the list, one of seven. Out of 325 'votes' only one station received zero votes. Yes, it was KDTV.

The ALJ took note of this 'evidence' but then embarked on a decision which had no precedent in all of the annals of FCC decision making. He found:

1) That while nobody voted for KDTV, perhaps that was because Spanish speaking people in the community who did not subscribe to cable found nothing on cable to interest them. In fact, at most 150 homes in (south) Sausalito did not subscribe. The ALJ said Cushman had 'erred' by first not including the non-subscriber base in his 'survey' and asking if KDTV would be attractive to them. Naumowicz wrote:

"The possibility remains that the percentage of Spanish-speaking families among respondent's subscribers is low not because there are few such families in the franchise area but because the programming on the system is unappealing to them."

Somehow the FCC ALJ had jumped from a questionable 1970 census which identified "7.2% of the people living in Marin County having Spanish surnames" to some quantity of Spanish speaking people living in (south) Sausalito who he postulated were not cable subscribers because cable was not offering them television in Spanish.

Cushman had tried to question the FCC's assumption during the hearing, asking how they managed to navigate from 'Spanish surnames' to 'Spanish speaking'" (to the exclusion of also English speaking), and, how they had determined that 7.2% of 'Spanish surnames' were in fact 'Spanish' and not Italian or Portuguese. The ALJ ignored his question.

"If this (a lack of Spanish television) were the case, the availability of a Spanish language station on the system might generate new subscribers interested in that station, and the fundamental purpose of the rule would be served by its enforcement. It was up to the respondent (Cushman) to carry this burden of proof, one way or the other, and this it failed to do. Having failed, it has established no basis for a waiver of the rule."

Technical problems be hanged - stick KDTV on the cable. Now.

When I became aware of the Cushman situation in July, CATA was in the last stages of preparing for the first-ever Seminar. I briefed Kyle and the board of what had happened and asked their permission to "jump on this with both feet" as soon as time allowed. Kyle thought

the case was a perfect example of how rules created by a bureaucracy were impossible to translate into the real world. I pushed for CATA's board to agree and to fund Cushman's certain appeal of the decision through the offices of attorney Brown. That decision would await my trip to Sausalito and my CATJ report.

CATJ had published reports of 16 pages or more previously. None had the 'social impact' of, "I'll shut down before complying." I began with Cushman's pre-Sausalito days, a skilled, qualified cable engineer capable of solving almost any technical problem thrown his way. Then I wove through his personal, family, decision to buy the system and why it was important for him, a man dangerously close to retirement, to have a (however small) income and a 'solid home' for his family.

I knew Sausalito very well, primarily because it sits at the base of Mount Tamalpais, the shoulders of which were creating the terrain shadowing that was the reason Howard's cable system existed. Back in the mid 1960s, when John Markovich and I had conceived being cable operators on our own, I had looked at Marin County and the several dozen towns not at the time served by cable. Mount Tamalpais rose 2,800 feet above the Golden Gate bridge and from its drive-to peak parking lot I had set up TV receiving equipment and measured for several days the reception from stations as far North as Chico and as far South as Fresno. The mountain was part of a state operated park, which would have been a challenge to cut through state bureaucracy if we decided to set-up a headend there. But the tests results had been so outstanding that I had often rethought of the possibility. And Sausalito was where I stayed while making those tests, largely because the 60's folk-pop group (the) Kingston Trio had opened a night spot there. As an unabashed Trio fan, I spent many an evening hour wrapped in the live, on-stage excitement they created.

I wrote about Cushman, the community, the FCC and KDTV with great ease. But the sheer size of the report (1/3rd of an entire issue) had delayed the publication until December. And that was the month when I was in Washington as the news of the FCC's ruling on our CATA petition to end the '9 meter satellite antenna rule' broke. In the day prior to that happening, I was bumping into 'Cushman' every place I turned. CATJ copyright notice or no copyright notice, I saw dozens and dozens of 'Cushman copies' - all 16 pages plus Kyle's two page CATA-torial, sitting on desks or folded over in front of intently reading bureaucrat faces. An aid to Chairman Wiley remarked to me, "The chairman wants to know why you write so well but always lose him with all of that technical mumbo-jumbo. Couldn't you do two versions, one for people

who don't know decibels from clam shells?"

Ahead now to March 1977. CATJ's front cover was simplistic; a full month calendar with March 10 circled. In bold black type, "FCC Frees 'Under 500' CATV Systems." Kyle's CATA-torial showed he was not pleased.

Actually, on March 1 the FCC did something even more significant. With March 31, 1977 less than a month away, the commission decided that March 31 should be postponed. Initially, to May 1. What that meant was profound. Cable systems facing renewal of their March 31-to-expire (by FCC mandate) franchises had a 31 day postponement. Hundreds, more likely 1,500 or more, had dragged their feet and stayed away from their city council hoping against hope the FCC would kill the requirement. CATA's counsel had filed a formal petition asking for a postponement in January, arguing, "It is well known the Commission is going to reach a decision as to what system size will be a 'cut-off' for FCC compliance. We ask that March 31 be delayed until that is known." The logic was straight forward: Why send every cable system (which at that time was defined as anyone with 50 or more subscribers) back to their city council if the Commission was close to changing '50' to a larger number?

Which brings us to Kyle's disappointment found in the March CATA-torial. In a series of unrelated but logical-fit decisions from 1975 onward, the Commission has decided that any cable system, without regard to its location, "serving fewer than 1,000 homes," would be exempt from the onerous requirements of "simultaneous, non-duplication". That was the regulation that forced all systems to 'protect' the programming of telecasters from the same program being cable-carried on a second channel. It was the crux of Bill Tuner's problems in Welsh, West Virginia. Kyle pointed out, "When the Commission reached the 1,000 subscriber decision, that immediately established how 'small' systems were now being defined. When the Commission decided 'small' (under 1,000 subscriber) systems no longer had to provide non-duplication 'protection' they in effect decided such systems would have no significant financial impact on telecasters."

So why the 500 number if 1,000 had already been decided in a related situation?

The answer was, (the) 'Broadcast Bureau'. The FCC was a sizeable agency but within its walls, every class or body of regulatees has a 'bureau' or group who administers their regulatory 'needs'. The Broadcast Bureau was responsible for all radio and television broadcasters. And as had evolved over decades, the guys and gals who were

assigned to 'regulate' became advocates-for their 'wards'. In this case, the broadcasters were against any cable systems being let off the hook and many in that Bureau thought even those with 10 subscribers should be forced to follow the new cable rules because that was what their 'broadcast clients' wanted. It happened that by October, Chairman Wiley had become personally convinced that situations such as Welch, Sausalito or the threat of Gridley was a 'waste of Commission resources'. Further, on legal advice, he was concerned that if a Gridley case ended up in a federal court, and the FCC lost, that *all* rules for *all* cable systems could be dumped.

It was CATA causing the problems; CATA and their members, the small guys like Howard Cushman and Bill Turner. What he decided to do was to exempt them, or as many as he could, by creating a new 'definition of regulated cable' that started at some number large enough that Kyle Moore and CATA would disappear in the sunset. CATA had been pushing for 3,500 as a 'threshold to regulation'. On the other side was the Broadcast Bureau saying "make 50 smaller, perhaps 10." The 1,000 number was already on the table, and Wiley liked it as a compromise.

The Broadcast Bureau, carrying the flag of the folks they were supposed to be regulating but who in fact they were 'protecting' from cable's evil influence, refused to 'sign off' on 1,000. And so broadcasters, through their regulatory bureau, managed to get the randomly selected, 'negotiated' number 500 adopted.

Kyle wrote in his editorial:

"The broadcast bureau is a sorry lot and the sooner somebody gets backbone and knocks some heads together over there the better off the world will be." The week March's CATJ arrived in Washington was probably not a good period for Kyle or I to be visiting at the Commission; certainly not at the Broadcast Bureau.

What the March 10th 'under 500' ruling did was this. By a (unanimous) 7 - 0 vote cable systems with 499 or fewer cable subscribers no longer were burdened with rules. There would be a one-time initial registration filing, and then 'verification' of the basic facts through an annual FCC computer check. But the smaller systems could carry ANY signals they wished to carry, subject only to a requirement that any TV broadcaster placing the protected 'A' or 'B' contour over the community must be included in the carriage list. No technical measurements, apparently very little else. Unfortunately for Howard Cushman, while his system was under 500 subscribers, the KDTV service was still required carriage.

Two other subjects jumped out of the March 1977 CATJ. Awash in rumors they were going out of business, industry equipment pioneer Jerrold Electronics took out a massive two-page advertisement to explain, "Last year, it became clear that Jerrold must change, as most successful systems operators have changed, or Jerrold would not be competitive enough - either to respond to customer needs or to make a satisfactory return on investment."

At the opposite end of this rainbow, CATJ located a man in rural southern Arizona who was building dozens of small systems, typically serving between 10 and 50 subscribers each. We devoted 25 (of 48 editorial) pages to a complete description of how Oliver Swan was 'making money' with systems that had as few as ten potential subscribers per cable mile. The secret was he built everything from antennas to amplifiers himself. He purchased only the cable and the 'raw parts' required to build headend and plant equipment. Moreover, in those 25 pages Oliver Swan taught readers how it was done. Right down to complete schematics for all of his equipment, construction details for his home built super sensitive antennas. This report quickly became a 'textbook' for new would-be cable system builders throughout rural America and Oliver Swan would be one of the top attractions to appear at the 1977 CATA Seminar. Two years hence, in 1979, his special talents would create extremely low cost satellite receiving antennas and receivers which would help launch the 'home dish industry' in a major way. But that is getting ahead of our story.

On April 1, 1977 (3 PM mountain time), TelePrompTer for their 5,300 subscriber cable system in Kalispell, Montana became the first legal, licensed, 4.5 meter cable television satellite receiving 'station' to 'get on the air'. The Prodelin (brand) dish, and a 120 degree low noise Scientific Communications, Inc. (SCI) LNA produced video signal to noise ratios near 52 dB for the HBO channel. Those 'numbers' were all good, and proved to doubting Thomas types that smaller dishes would indeed work for cable. The flood gates were about to burst.

At the same time, a smaller company trying to manufacture satellite receivers for HBO, WTCG et al, announced another kind of break through. Microdyne in Rockville, Maryland had worked out a new engineering method to make satellite receivers more sensitive. It was going to be called 'threshold extension' and what it would mean is systems that required satellite dishes 4.5 meters or larger could conceivably get by with dishes under 3 meters in size. It was all getting closer and closer to the 1.83 meter dish operating in my back yard for nearly a year to this point. How much longer could I keep quiet about all of

this? I wasted no time seeing how a Microdyne 'low threshold receiver' when connected to my backyard dish and the Fred Collins supplied LNAs would perform. Anyone for 4 foot dishes? It was getting smaller and smaller in 90 day increments. There were hints if you knew where to look for them, in CATJ. A letter written by Bertram D. Aron, an engineering consultant from Greenvale, New York, appeared in the June 1977 issue. He wrote, "May I call your attention to what I think may be an omission (CATJ February 1977)? Scientific Communications has an LNA, their GaAs-FET model 395-505, which for $2800 is much more cost effective than the NEC GaAs-FET model you wrote about. This amplifier is now 'on stream' at RCA Americom and performing beautifully in service with a six foot antenna." Oops. A six foot antenna!

Microdyne's "low threshold" development used a new kind of 'demodulator' or device to turn the satellite signal into video and sound. I wasted no time discussing their approach with Steve Richey and then contacting an acquaintance in England named Steve Birkill. The two 'Steves' had similar thoughts. Birkill was pioneering home dish systems in Europe, he was a BBC transmitter engineer with an unusually fertile mind. Ultimately he would come to the USA for CCOS -78 when we would 'uplink' (transmit) the entire three day event seminars to a 'waiting world' via a transportable satellite uplink. We'll come back to that.

M-A MAKES A MOVE

After nearly a year of slipping in and out of Boston to spend hours or days as the occasion allowed with Microwave Associates, the firm made a move on the cable industry. A sales move.

The GunnPlexer amateur radio device which I had first inquired about now had a commercial version. The big 'news' was the cost. For around $2,400 per cable channel, the operator could 'squirt' a complete TV channel over a distance of ten miles or more. What this meant was that from one cable headend complex, where the big tall tower and all of the signal processing equipment was located, small communities, within 'GunnPlexer range', could be sent signals. Consider, for example, one satellite dish receiving and processing HBO, WTCG and perhaps one or two other satellite signals. For $2,400 per channel, the cable operator could redirect those satellite signals to nearby communities and their own cable systems. The secondary communities would have the same service as the one with the dish system, but without their own dish. At a time when a dish, even the 4.5 meter variety, still cost more than $20,000 a pop, this seemed like sound cable economics; hundreds of new suburban towns would now have cable TV thanks to the original GunnPlexer concept developed by Steve Richey and I.

Fred Collins and crew had created a new series of equipment packages built around the GunnPlexer. The transmitter portion had a list price of $1,400 (the MA-12XC-T) while the receiver was $1,000 (MA-12-XC-RA); $2,400 total end to end, plus small (2 to 8 foot) parabolic terrestrial microwave dishes.

CATJ did its usual in-depth story in the May 1977 issue and then promised 'hands-on system design and implementation seminars'

during CCOS-77. Back in October I had visited Boston and played with a prototype of the now available GunnPlexers for cable. Duke Brown and I had set up a video link across several miles of Massachusetts country side as my indoctrination. I found it very similar in operation to what Steve Richey and I were already doing with the 'amateur' or ham version GunnPlexer equipment in Oklahoma. Which presented me with a dilemma.

The $2,400 price tag was a huge price breakthrough - less than a third of similar equipment designed to do the same thing. Microwave Associates deserved kudos for their fancy engineering. But at the same time, Richey had taken the 'amateur' version GunnPlexer and using his own smarts added $50 in parts to a $50 GunnPlexer and was now doing essentially the same thing. I owed it to Dana Atchley to applaud their design and innovation. I owed it to readers to point out that $100 was 'better than' $2,400.

The answer was the law; the FCC. The Microwave Associates equipment was 'FCC type accepted' meaning it could be licensed for cable TV system use. The Richey version could only be used by ham radio licensees and then only for 'non-commercial activities'. Shooting HBO or WTCG to a neighboring cable system fell outside of 'approved amateur operation'.

I discussed this with Dana Atchley and Fred Collins. Both being hams, they understood the non-professional approach. Both being well up the ladder at Microwave Associates, they also wanted to protect the 'mother ship'. Dana had a suggestion.

"Why don't you take the Richey version and create a detailed build-it-this way report for one of the ham radio magazines? Let Richey sell kits of parts and he'll make money that way, we'll sell GunnPlexers and while there is nothing to stop a cable operator from reading a ham magazine and getting the idea he could do it himself for a fraction of the cost, few would be willing to risk the wrath of the FCC if they got caught doing this." That seemed like a workable plan which I carried with me back to Oklahoma. Richey had done quite well designing kits from my articles and this one would simply be 'another one of those'. Or so we thought at the time.

In fact it would be fall of 1978 and *Popular Electronics* again with a three part, 17 page description of 'Personal Microwave Communications System' which for the first installment again made the front cover. Richey would wish it never appeared in print, but that is the 'future'.

With cable on the verge of exploding anew (even Jerrold would

make a dramatic recovery from its economic ills) solely because of the rapid development of satellite services, system owner attention was turning to 'more channels'. With HBO-pay operating, WTCG and then CBN joining it as 'regular channels' and a host more preparing to 'launch', the 12 channel system was rapidly becoming a dinosaur. For the 12 channel system operator (TV channels 2-6 and 7-13, for a total of 12), and those who were still five channels (2-6) only, some big, and potentially expensive decisions.

To convert from 12 channels to some number like 35 required three major cable system changes:

1) The headend from whence all channels came had to be upgraded to create new channels beyond the common 2-13 'numbers'. That involved 'mid-band modulators' which carved out new channel positions between channels 6 and 7 where 'over the air' TV was not actually operating..

2) A complete rework of the cable TV coaxial cable network, which had been designed originally (if old enough) for channels 2-6, then expanded to channels 2-13 and now must be expanded again to add channels A through I (21 total) and possibly an additional 9 to 15 'beyond' channel 13 on the dial (36 total was 'state of the art').

3) The fun part - equipping cable subscribers with new set-top tuning boxes to allow them to receive these new channels (standard TV sets of that era not having a built-in capability to tune-in 'cable-only' channels).

This was one of those 'coincidences'. Just as satellite TV was exploding with new channels monthly, each destined initially for cable distribution, a breakthrough in cable amplifier equipment also occurred. The 12 channel maximum was expandable to numbers like 36 only because a component part manufacturer (TRW) had created a new single 'chip' amplification device capable of processing the new channel load. If Howard Cushman was going to have to replace his 27 system amplifiers with new ones capable of more than 12 (in his case 9) channels in Sausalito, he had two choices:

1) Go to Jerrold or someone like them and purchase new amplifiers with the added capacity (typically $800 up per amplifier - in Harold's situation, nearly $22,000 and way-way beyond his financial ability). What few foresaw was the probability that within five years, 36 channels would become inadequate and yet another set of replacements would be required!

2) Or, go to a new Florida firm operated by Bob Savard called Broadband Engineering, Inc. Savard, being extremely clever in the same

league as Steve Richey, had worked out how to take existing 12 channel amplifiers and using 'parts kits' he provided and instructions he developed, take one amplifier at a time and at your own work bench, upgrade the old one to a new 20/21 or 36 channel capacity. Costs? Under $200 (often under $150) per amplifier. Savard's 'mod kits' revitalized an entire industry just when it needed help the most. New channel capacity for old cable plants which would, down the road in five years or less, go back to Jerrold with much improved cash flow and spring for the far more expensive (by then) 60 channel amplifiers.

Savard had a winner and because CATA had turned CCOS 76 (and would turn CCOS 77) into hands-on seminars where people who previously 'never held a soldering iron in their hands' into competent technicians, the cable world was changing. CATJ's emphasis on 'hands on' was certainly helping as well. By taking the 'mystery' out of cable's electronic circuits, cable operators now felt comfortable dealing with the tiny parts upon which their life suddenly depended.

My own 'public' dish

The time was rapidly approaching for a new run on the FCC's demand that while cable operators could obtain a 'license' for a dish as small as 4.5 meters, there remained a licensing requirement. Their 'official logic' was tired but oft repeated.

It ran like this. Cable was now part of a regulated environment. Regulation included 'standards' that translated to the quality of what was delivered into the home. Satellite TV was providing channels of service and if cable was going to utilize these satellite services, cable should be required to maintain 'minimum standards of quality' for these channels.

And there was the interference aspect. Satellite signals flowed to ground from the sky. In the future, the number of satellites (and therefore the number of individual signals) would multiply many-fold. If cable systems were going to use satellite relay, the addition of future satellites and new channels should not create interference for older receiving terminals.

Ipso-facto. All terminals must have a license to insure quality of service and a lack of interference.

Of course all of this benevolent-FCC-knows-best wisdom was a smoke screen created by AT&T which had been suckered into allowing satellites to operate within their terrestrial microwave band (3.7 to 4.2 GHz) in the first place. I believe to this day AT&T agreed to satellites only because they were certain it would be AT&T and no other firm who would provide 'domestic' (within the USA) satellite service. When that did not happen, AT&T went into a panic mode and through their persuasive powers at the Common Carrier Bureau fought like a cornered

animal to keep the licensing structure in place. I further believe AT&T correctly saw that without a license system to 'control' who could have satellite terminals, they feared a total loss of the 'integrity' of their existing terrestrial microwave network.

And they were mostly right with that (well founded) fear.

By mid-1977 a very diverse group of potential satellite users was looking closely at networks of terminals. Holiday Inns was one of those. The Memphis, Tennessee head-quartered firm had a President who had been quick to agree to placing 'Marquee Pay TV' movies into many of his frequent-traveler facilities; for example, Holiday Inns in Washington, the nations' capitol. But his Holiday Inns could implement this optional ($7 a movie-night) service more inexpensively where cable or MMDS (terrestrial short-range microwave) existed to make the movies available. Suppose Holiday Inns had its own satellite 'channel' and delivered movies and entertainment and group meeting events directly from Memphis to every Inn within the USA? And radio broadcasting networks. Already ABC, after fighting CATA on the issue of dish size, had a high level study underway to create a scenario for interconnecting hundreds of network affiliates with New York City or Los Angeles created programming. And the oil pipe line folks. Few realized that huge oil (and natural gas) pipelines must be 'monitored' and 'directed' (by remotely turning valves on and off or up or down) 24 hours a day. This demands on-site personnel, all of whom might be replaced with satellite delivered electronic messages that would monitor the flow of fuel and operate valves and pumps on command from a control center half a continent removed. And the list of potential user applications was growing weekly.

Of course 4.5 meter dishes made all of this more appealing. And smaller dishes were obviously possible, provided the FCC's stingy demand for licensing was abandoned. Into this scenario I factored in my own dishes - a six footer and a ten footer, both working 'just fine thank-you' courtesy of long term loans of receivers from firms such as Microdyne and a steady flow of LNAs from Fred Collins. What I believed needed to be done was to make a case for non-licensed dishes; any size, any where with the guy putting it in being 100% responsible for whether it worked or did not with no recourse should AT&T or other interference to his reception occur.

Maynard "Stormy" Weathers. A few years prior he had asked me to "trade CATJ advertising space" for some hefty towers for my ham radio station. Kyle and Bunk Dodson had agreed and the rest was history. Now Stormy was back.

"Our six meter satellite dish," he began. I knew it well - I was there when it was first shown to the public (January 1977) and the February (1977) issue of CATJ had provided Stormy and US Tower with heaps of no-charge publicity. They even made the front cover of the magazine that month.

"And?" I answered.

"I'll bring a six meter (nearly 20 foot) dish to your home and install it. It is yours to keep if we can 'trade' its value for CATJ advertising."

Manna from heaven. What I really needed was a dish system large enough to properly test a wide range of equipment. And moreover, the hard part, one with which I could go to the FCC and obtain either a straight cable TV license or as it would turn out, an 'experimental/developmental license'. Stormy's six meter had recently been 'proofed' for FCC purposes and could now be licensed by simply referencing to its 'testing approval' number.

I contacted Kyle and reported I finally had a plan to do away with licensing. He was one of the few who, over time, had come to know about the terminals in my yard and the extremely close relationship I had with Fred Collins and the folks at Microwave Associates. There was only one thing he did not know - Chairman Dana Atchley's intent of being the first firm into the 'home satellite dish market', provided the licensing yoke could be removed from the neck of would-be dish installers.

He approved the 'trade' deal and shortly Stormy would arrive as promised with a 6 meter fully licensable terminal for my side yard. An installation crew of six guys came along including Tony Bickel, the designer of the dish and my former 'antenna man' at CADCO - now a part of the USTC team. Stormy and his son Danny arrived around 6 AM on a September morn with a back hoe and a truck filled with sacks of concrete, sand, gravel. A few hours behind them, two trucks pulling flatbed trailers loaded with all of the parts that made up a 6 meter (19.7 foot) dish. Stormy proceeded to mix lime into the sakrete so, as he explained, "it will quick dry and we can be out of here by sunset." It seemed like a pretty tall order to me; from bare ground to watching satellite TV in 12 hours.

It was going very well and I had shot perhaps ten rolls of 36 exposure film as 6 PM clicked by. Tony Bickel was installing a feed horn on the dish and I had provided an LNA - careful to select one that was on 'loan' from SCI rather than one of the M-A prototypes. Next to the almost-20 footer now nearing completion, a ten footer with no LNA on it and the 'tiny' six footer which was working away on Westar and

the PBS service to educational TV stations.

Stormy, a large man of 65 who looked like someone who took son Danny outside each night and practiced shooting apples off his head with a meat cleaver, ordered Bickel off the ladder leaning against the feed and walked to the rear. We had the 'co-ordinates' for elevation (how high the dish must point into the sky) and the azimuth (how far it would be pointing reference due south) worked out for my rural Logan County location. Stormy told Danny to set the elevation which was done with a protractor type of elementary school tool (some guys used $1,000 inclinometers - not Stormy; his cost $1 at a school supply store). And then he did something I have never seen done subsequently.

A six meter dish requires extreme precision to even locate a satellite - people have spent a day just searching for the signal even when everything was working properly. Stormy walked deliberately to the side of the dish, put his thumb up at the end of an outstretched arm, and moved the thumb from the edge of the dish to the moon (!). Then he quietly directed son Danny.

"Move it west until I say stop."

"Stop ... and nail it down," indicating a man at the rear should tighten some bolts and move the dish no more.

"OK Tony, turn the receiver on." Bickel did as instructed and there on the monitor was CBC evening news being uplinked on Anik, a Canadian satellite, from Vancouver!

Moreover, try as Bickel might from that initial dish setting, we could achieve no more 'signal' out of the system. Not that it mattered - the picture was totally clear of any 'sparklies' and the sound was acceptable (all CBC sound in those days had a distinct 'tinkle' to it and a special receiver modification was required to eliminate the shrill extra sound). In slightly more than 12 hours I had high quality satellite TV with a dish I could 'take to the Commission'.

The era of 'home satellite TV' was looming closer.

Just prior to this happy day, CATA had held its second-by now annual-CCOS or CATA Cable Operators Seminar. Some basic notations. More than 650 attendees, up from 450 the year prior. The location was Fountainhead Lodge, a 'bigger-better facility' than Wagoner but still a unit of the Oklahoma State Park (lodge) system which CATA was about to outgrow. Top seminar was 'The Future of CARS Band' which dealt with Dana Atchley's new low-cost microwave equipment. More than 250 crowded into the scheduled session which was then repeated a second time 'ad-hoc' to allow those who missed it to attend. Microwave and satellite dishes were all over, including a trio of compet-

itive 6 meter size antennas.

Steve Richey was back to help people build kits and with the assistance of Arizona's Oliver Swan operate the 'CCOS Lab Room' where operators brought their broken, discarded, equipment and then stood behind Richey (or Swan) to watch how they repaired the equipment. The most amusing 'moment' happened in Steve Richey's kit building seminar. Forty people were laboring away assembling frequency counter kits, from a previous article appearing in CATJ. The frequency counter was an essential test instrument for systems over 500 subscribers who still - at that point in time - were required to make FCC measurements. CATJ reported:

"When the first guy got to the point of firing up his counter for the 'smoke test' an interesting sequence of events follows:

"1) The top end of a tantalum capacitor literally blew off the capacitor, and the loud gun shot noise brought 40 kit builders to their feet.

"2) Immediately a ring of fire appeared around the blown capacitor, in a complete circle, which then proceeded to burn down the full trunk of the device reminiscent of a Fourth of July sparkler.

"3) The flames, going pretty good by now, jumped to the circuit board and billows of grey smoke rose as the flames spread rapidly across the board scorching and destroying nearby parts, flooding the room with a grey pall."

The counter kits each had 5 such capacitors. Richey worked out that while four had come from one supplier, the fifth (and the one that had '4th of July' written all over it) came from another supplier. The other 39 kit builders completed the building work up to the point of firing up the units for the so-called 'smoke test' and then Richey hauled them all back to his lab to complete and check out the units before CATA sent them off by parcel post to the anxious builders.

My impression of CCOS-77 was, too big. Almost nobody else agreed with me but then with the exception of Celeste Rule, almost nobody else was responsible for 650 people being well fed, reasonably sober, on time to 13 seminar sessions, safe from exploding tantalum capacitors and happy they came from as far away as Hawaii or Maine to attend. If CCOS-76 had 'proven' the wisdom of 4.5 meter satellite terminals (it did), CCOS-77 proved the viability of low-cost microwave linking. And in all of the CATJ published photos and the 300 that we did not publish shot by my camera, not a single person wearing a coat and tie. That alone said all I needed to know.

Well, almost. For nine months Kyle had been suggesting he 'step down' as CATA's President. He was a founding father (most would agree 'the' founding father) and he could reflect on his four years with

considerable pride of accomplishment. With more than 700 member systems and certainly the best legal team in the industry (Brown and Effros) representing the trade association in Washington, he would be leaving on a high note. Kyle had personally directed battles against copyright (ultimately, there would be some copyright for cable starting in 1978, but heavily watered down from what the NCTA suggested), small systems to at least 499 subscribers had been exempted from FCC rules (in no small part because of the FCC's uncertainty as to how a Gridley, Kansas 'test court case' might go), monetary fines and forfeitures against small cable systems had been delayed if not finally beaten, satellite to cable had become a reality and, because of CATA, dishes of a reasonable size and expense were now possible for smaller systems. Moreover, as Kyle wrote in his August 1977 CATA-torial:

"CATJ has become one of, if not the, most respected and best-read (world-wide) industry publications (and with it) we have passed through many industry battles together." The CATA Board had with membership input rewritten the non-profit corporation's by-laws creating a new position of 'Chairman of the Board', which Kyle noted: "....(is) sort of the place where old or former Association Presidents go off to wind down before being allowed to totally return to private life."

What very few knew about Kyle was his love of old (as in antique) cars and trucks and from that 'hobby' a passion that he had developed during the CATA years. America was changing rapidly and one of the changes was occurring in the field of gasoline stations. Old style glass-bulb-at-the-top gas pumps were being dismantled and junked all across America. Don't ask me why - don't ask Kyle why, but something about those pumps absolutely fascinated the man. He began driving to his cable systems in a pickup truck pulling a trailer. That grew into a sizeable van with large rear loading doors. As Kyle drove the rural roads of Oklahoma, Texas, Kansas and Arkansas checking on his cable systems, he kept an eye peeled for gas stations or abandoned gas pumps that fit the 1910 - 1950 era. Finding one or two or three, he would pull up his truck, get out and bargain with the owner. Often these old pumps had been installed by the gasoline supplier decades before and then abandoned in place when new gas stations replaced the 1930-1940s era pumps standing in front of rural feed or grocery stores.

Striking a deal, Kyle would slide greasy overalls over his normal work clothes, unload sets of well maintained wrenches and fire up his portable lift. A few hours later a carefully removed 1932 design Cities Service pump or pumps, loaded into the rear of his truck or trailer, would be on its way to his home work shop near Cordell, Oklahoma.

Kyle became the foremost collector and restorer of old gasoline pumps in America. His collection would be bigger and his restoration better than any other known. And more valuable. For a strange thing happened through the 70s and early 80s. These 30 to 70 year old monuments to an older, gentler America escalated in value as the supply of unclaimed pumps diminished to almost nothing; perhaps because most of the better ones were housed in a new warehouse Kyle was forced to build for them in Cordell. For Kyle, every pump had a story to tell. He found them in abandoned wheat fields where perhaps the last fuel they pumped into a vehicle was to a family leaving Oklahoma for California during the dust bowl days of the 30s. He found them in barns, underground where they had fallen and been covered by debris, even in swamps where in 1941 a feed store had once stood.

Each and every one, hundreds and hundreds in all, were totally dismantled by Kyle, the parts carefully inspected, and where necessary either replaced or rebuilt. He was especially insistent that any of the restored pumps not only 'looked brand new' but could and would pump gas again if given the opportunity.

Kyle Moore, a quiet, field trained man who sought to become a jeweller in his youth and somehow became diverted from that calling when the small town he lived in was one of those without television in the 50s. Millions of television viewers in hundreds of towns like DeQueen, Arkansas and Gridley, Kansas owed the diversity and quality of their television to this mild, soft spoken man. Sadly, not one of those TV viewers had the slightest idea of that debt.

Perhaps Kyle's last days was the 'real reason' I was not overly fond of CCOS-77. Our relationship had been, well, different. I only visited his home one time, he visited mine twice and both of these visits were as part of CATA demonstrations. I never ate a meal at his home, nor he at mine. But we travelled the United States from end to end together, almost always saw problems in exactly the same way and solutions or possible solutions identically as well. I last saw and talked with Kyle in June 1979, as I was carrying my personal belongings out of the CATA and CATJ offices in card board boxes.

"It's been ... interesting and fun," said he.

"See you soon," I replied.

"No, we won't. This is the last time I will ever see you or we will talk." He grasped my hand warmly, shook it, turned and was gone. And he was right. It was.

But that is getting ahead of the story, once again, by about 22 months.

A BUSINESS PLAN FOR HOME DISH SYSTEMS

Increasingly my attention to CATA and the problems of the small town cable operator was being diverted. I was not conscious of this initially as the 'next' big challenge was in my mind at least fused directly to the problems of cable. My trips to Boston and Microwave Associates became more frequent as the sensitivity of satellite receivers was leap frogging every few months and this pointed directly at smaller and smaller antennas being suitable. Fred Collins and Dana Atchley were constantly pushing me for a 'business plan' that would create a blueprint for MA's entry into mass production satellite receiving equipment.

"How many homes would purchase a home dish system if they could be sold for $5,000?" was a frequent question from Dana. "$4,000? $3,000?"

"What are you going to do about eliminating the TVRO FCC licensing requirement?" was another of his favorite topics. Early in 1978 Dana decided to surprise me with an incentive plan. In his mind, I suspected, he thought dangling money in front of me would cause it all to happen sooner.

I could talk with complete self assurance about the day when 'home dish systems' would be sold and installed by modestly trained semi-professional business people but these discussions were totally limited to closed door offices at Microwave Associates. Not even my wife, Susan, had an inkling of what was being planned.

Dana used some of his Chairman-of-the-board discretionary funds to create an outside-of-MA task force with the singular assignment to

develop a total business plan for what would by 1980 (a date that happened on its own) become an entirely new industry; home satellite dishes. I was well paid to head this task force up and had the additional assignment of selecting 2 of the 5 people who would participate. Two others were 'nominated' by Dana from the bowels of the Microwave Associates team and I was the fifth.

Drafts of business plans began to flow, first from me, and then in segments to others on the task force. The first outlines merely identified the challenges and roadblocks standing in our way. Some obstacles would evaporate with the passage of time (for example, the high cost of microwave suitable component parts - as production quantities ramped up, prices would come down resulting in lower cost 'home' dish systems). Others would not go away unless somebody made them go away. The primary target here was the FCC's reluctance to allow anyone to build a satellite receiving terminal without their approval; a license.

With the Stormy Weathers provided 6.1 meter dish sitting in my side yard, I now had the tool required to request an 'developmental license' from the FCC. One of the Commission's license application requirements involved obtaining written permission from one or more 'satellite programmers' to 'intercept' their transmissions. The FCC considered all microwave transmissions 'private' point-to-point services, and satellite was using microwave frequencies. This was one of their Catch-22 requirements. There was nothing to stop an enterprising person from building a satellite receiving system, but by requiring that before such a terminal could be 'turned on' the user have written agreement to receive programming, the feds had a tool of enforcement.

Without a license, you could not get final authority to access a transmission (from, for example, HBO) and if you did this without a license, they had both monetary fines and potential jail time waiting for you if you got caught doing it. My 'business plan' was to report on the many aspects of building and operating a terminal in CATJ so nobody but nobody was going to be more 'open' about having a terminal in operation than me.

Dana pushed me about the licensing. "Why bother to do it - just don't write about it!" His concern, it would turn out, was that by writing about such a receiving system I was 'sharing' valuable information with potential competitors to Microwave Associates.

"Let them build their own and learn this valuable stuff the way 'we' are doing it - don't write them a procedural book!" was his retort.

My plan to eliminate licensing was more complex and I was reluctant to share it even with him. I believed that the Commission would

ultimately handle 'small terminal licensing' the same way they had dealt with small cable systems; simply rewrite the rules to ignore antennas below a certain size for licensing. I was sharing this concept only with Rick Brown, CATA's Washington council, but even as much as I trusted and believed in Rick's integrity, I never mentioned 'home' dish systems in anything more than a passing, oblique way. Rick's mind was so finely tuned to new technology affecting FCC rules that I dared not spill the beans, yet. He was, after all, being paid (and handsomely at that) by CATA and it would have taken him about ten seconds to deduce that 'home' dish systems might not be in the best business interest of CATA members.

I began visiting with some regularity the FCC group that had originally been responsible for licensing of Citizens Band (CB) radio. When CB radio licensing became too much of a burden for the bureaucracy, they simply threw up their hands (in disgust I might add) and elected to eliminate the license requirement. I wanted to know as much as I could learn about the interagency memos that flowed back and forth leading up to this decision. The two situations were not identical but if I could locate the pivotal arguments that swayed the commission to drop licensing for CB, I thought there would be an opportunity to send 'home dish system licensing' down the same bureaucratic pathway.

Dana finally caved into my stubbornness to write as much as I could about building and operating 'small terminals' when I disclosed my master plan. It involved a carefully timed article that I would prepare for *TV Guide* magazine. My digging at the Commission sent me down a trail that convinced me the FCC would cave in, quickly, if they thought 'home dish systems' might be heading for the same impasse that CB radio had presented. What I had to do was to make the 'home dish world' look much bigger than it was, a scare tactic I now admit, hoping that if the Commission believed the horse had already left the barn, it was too late to close the barn door. I also harbored the belief there was a jurisdiction issue here. The 1934 Communications Act, the ultimate authority for everything the FCC did, very specifically did not grant them permission to be licensing receive-only systems. Had this been the case, everyone with a radio or television receiver in America would have held such a document (as is true in the UK). Their demand for licensing of satellite 'receive-only terminals' was, I believed, an issue they did not want brought before a court of law. I believed they would lose.

"You can get such a piece in TV Guide?" He was sceptical. "Yes,"

bringing out of my Lands' End briefcase two letters which had already been exchanged with the TV Guide editorial department. In March 1978 they were committed to the project and as the letters plainly detailed, the whole concept of 'home' dishes would be a 'secret' from the general press until it was published in TV Guide. Their ability to 'keep a secret' worried Dana; here we were sitting on game plans for the 'next industrial revolution' and loose-cannon Cooper was telling just enough to the world's largest circulation magazine (20 million in 1978) to give away the farm.

As I was to write the TV Guide piece, it would say whatever I wanted it to say after getting through the blue pencil of the editor. In April drafts of the article were shared with the other members of the task force, and Dana. There were some changes suggested, one of the Microwave Associate task members urging me to identify his firm as a 'pioneer supplier to the industry', somehow believing this would be good for M-A. I was against such open commercialism and it took Dana to point out, "At this point there is no such thing as a Microwave Associates home dish terminal system!" To which I added - "Remember, we are trying to make this seem like the next revolution in television, as if it has already happened. In fact, I don't know of more than 40 people with home dish systems in the entire United States today."

So how do you turn forty people with dishes into an overwhelming group so large that even the FCC is self-encouraged to drop their "you must have a license from us" requirement? CATJ was the answer. With perhaps 50 subscription copies going to the various personnel at 1919 M Street (the FCC's then office building), those 50 copies became the most important of our entire circulation. If I wrote about what was happening without giving away what was really going on, in a way that slowly convinced the FCC readers licensing of 'small' (we tried to avoid the word 'home' at this stage because it would attract opposition from the cable folks) terminals was a waste of their bureaucratic time, the battle could be won. Even if there were only forty actually 'out there'. I knew how few there were; the FCC did not and if CATJ made the number seem much larger, well - shucks!

I had some help from an unexpected quarter. The Holiday Inn chain had decided they were going to equip essentially every one of their facilities with a dish and receiver. Initially, the plan was to distribute movies in the motel rooms. There was an amusing story of the Chairman of the Board of Holiday Inns, suffering from pneumonia and dressed only in pajamas and his bathrobe, standing in a sleet storm outside his home in Memphis while a crew from AFC (antennas)

and Microdyne (satellite receiving equipment) completed his own 'private' (OOPS - there's number 41!) system, enthusiastically handing wrenches to the antenna assemblers while coughing and wheezing, ignoring his wife's pleas to "get inside - now!" When Holiday made their announcement, every competitive motel and hotel chain in the United States rushed to be a part of 'free movies in your room'.

It was a brilliant move by Holiday Inns and this announcement alone in 60 days changed the complexion of small dish systems. Initially Scientific-Atlanta and Andrew, the two primary suppliers of antennas for cable systems, were caught napping and third level antenna firm AFC plus newbie receiver supplier Microdyne had the initial Holiday Inn order in their bag. And one very big nail was driven into the coffin of FCC licensing; the prospect of thousands (no - tens of thousands) of 4.5 meter dish systems springing up at every freeway off-ramp in America sent a chilling message to the regulators.

This seemed like a win-win situation. For HBO, the prospect of having their premium movies in thousands of motels and hotels was a wonderful way to introduce the concept of 'HBO at home' to that cadre of folks who travelled frequently. What better way to deliver a sales message in support of their local cable system also carrying HBO? But there was a serious flaw in the plan. HBO was prohibited, at that point in time, from allowing its movies to be used by motels or hotels. The Hollywood moguls who policed the 'who can use, where' movie agreements were adamant that HBO's cable affiliates not connect up the HBO channel to any motel; Holiday Inn or otherwise.

Hollywood's approach to cable affiliates of HBO, at that time, was indeed strange. HBO was delivering product to not only cable but also to MDS (terrestrial microwave - sometimes called 'wireless cable) systems. Hollywood saw nothing sinister about MDS selling to motels and hotels, which as CATJ for May 1979 would detail, was a pretty strange situation because for under $500 a person intent on 'pirating' the MDS service could do so with gadgets commonly available 'on the street'. In other words, HBO + MDS equalled unparalleled, low-cost opportunities for signal theft. It was the 'potential of theft' that seemed to be upper most on Hollywood's mind.

But Holiday Inn had a master plan which would be revealed over the ensuing months; using the technical assistance of Ed Taylor and his Southern Satellite Systems common carrier service, they had put together a consortium of SSS, themselves, Bell & Howell plus Twentieth Century. The group provided all of the necessary ingredients to create a custom-for-Holiday (Inn) satellite delivered package of movies,

features and perhaps some sport. Initially the consortium considered allowing competitive-to-Holiday motel chains to participate, but that proposal quickly disappeared as Holiday Inn Management saw the potential to one-up the competition.

For the dish system creators, business was going up several thousand percent overnight - forcing folks who built antennas, receivers and the low-noise amplifiers to think about production runs of a 100 rather than ten at a time. Nothing brings pricing down faster than greatly increasing demand. For cable systems, even the now 'small' (FCC licensed) 4.5 meter antennas were going to drop in price rapidly and yes - there would be those who began to seriously consider dishes as small as 3 meters (ten feet).

HBO and Holiday Inn were not the only large quantity buyers surfacing. ABC, the American radio network, had now decided that small dishes would be a very inexpensive way to deliver a montage of different radio network services to affiliates from coast-to-coast. That in turn pushed Mutual's radio network to say 'us too'; the domino effect. ABC envisioned an all sport, all news, all talk package of up to four separate radio services. The network believed that by offering more than a single network radio feed, stations would be able to select the one feed that best fit their local programming format. Up to this point, AT&T delivered over leased telephone lines the single radio network feed to affiliates and the expense plus the limited programming format options available was causing hundreds of radio stations to drop their network affiliation. Radio networking, because of the popularity of television as the primary electronic entertainment medium, was all but dead; ABC hoped to restart the business with the small dish, multiple format satellite feeds.

All of this was happening with the speed of light and through the first six months of 1978, CATJ was the only publication in the world with its thumb on the developments. My recently launched 'Coop's Column' became the focal point of the revolution as I routinely reported month after month the acceleration of the changes underway. CATJ circulation was shooting through the roof, advertising was at an all time high, and I found it was now possible to speak to virtually anyone in this field in the world by merely telling the usual office screener of telephone calls who was calling.

CCOS 78. By April I would normally have rough plans on paper for the summer's Oklahoma annual gathering of the cable faithful. I did not this year because one of the most heretical plans to ever take shape was beginning to form in my mind. Now into its third year,

there was the natural drive to make the new one 'bigger and better' than the last one. But wed as CATA was to the Oklahoma State Park Lodges, bigger was difficult; once you fill up the main lodge, the cabins and the third rate country motels within 30 minutes drive time of the lodge proper, how do you retain the laid back country-folk atmosphere of a CCOS without moving into a larger venue: such as Tulsa or Oklahoma City?

"I suggest we encourage people to stay home, to not come at all," I began with the CATA board. Dead silence. I had to repeat the sentence because it was obvious many of the 15 in the room were sure they had misunderstood what I was saying.

"Look - we will have no difficulty filling up the 400 beds available. So what we do is tell people that unless they have 'urgent business' that they must conduct in person, they stay home and watch it on television."

You could hear a pin drop and once again I repeated the sentence.

If at that point we had asked for a show of hands of those in favor of signing a mental institution commitment petition against Cooper, almost everyone would have done so. Even Celeste Rule, the lady who always took my hair-brained schemes and turned them into reality, was shaking her head and looking down at doodles on a notepad.

A very pregnant pause and I continued.

"What business are we in? The answer is the delivery of television. What is the most exciting new aspect of delivering television to our subscriber homes? The answer is satellite. How many cable systems now have a satellite dish installed?" I quoted a number and then forecast how many more would be in place by July's CCOS.

"So here's the plan. We will design CCOS 78 so that it is a three day television program. Every session will be televised, first to the rooms throughout the lodge and the immediate area, and then - " a pause for effect - "via satellite to those hundreds, thousands of cable personnel who could not get to CCOS. We will reach cable operators from coast to coast, Canada to Mexico - live and direct from our site."

Now it should be noted that at this juncture in time, there was no such thing as a portable, transportable uplink station. Nobody had one, anyplace in the world. CNN was not yet born, and you could not merely drive a SUV into a front yard and 30 seconds later be sending television pictures and sound to the world.

Yes, of course I had done my homework or I would not have been standing there bald faced and - figuratively speaking - 'naked' in front of the CATA Board of Directors. To a man (and woman) in the board

room, nobody thought this was even doable. I heard responses like "Sure, with a million dollar budget," and "Hey - we are small folks with a small budget - this is not NBC!"

I let them respond, all positive about the concept but negative about the practical aspects of doing such a thing, for perhaps five minutes. Then I raised my hand as if I was in command (an abstract feeling when you are merely an employee) and they silenced the private conversations.

"I have all of this worked out - at least on paper. First of all, I have located an 11 meter transportable uplink terminal in Ontario. Second, I have a promise from US Tower Company they will send trucks after the terminal and return it to Oklahoma. Third, I have talked with RCA and they will give us - free of charge - the transponder (satellite) 'space' to use over a five day period. Fourth, I have talked with Jerry Levin at HBO and he has agreed to pick up some of the major costs for the labor involved in this. Fifth, I believe we can call for volunteer technical labor to come to the lodge a few days early to unpack and erect the 11 meter terminal. Sixth, I have arranged for an experienced uplink engineer from RCA and as a backup one from the UK to be here to make the electronics work. Seventh, I have a verbal commitment from Microwave Associates to provide the technical assistance we need to get from the lodge studios to the uplink trailer. And finally, number eight, I have a commitment from a professional group that produces AFL and NFL football games with a transportable studio / control center to come here for a week to oversee the production of the entire event."

Questions followed; tens of questions. I had the answers, or at least I said I did and my answers were reasonably on mark even if I did make them up as I went along. What I needed was the Board of CATA saying 'OK - go ahead and do this' and I would be away. What was most impressive to everyone in the room, I think, was that when I was asked - "OK - so what will all of this cost CATA?" my answer was, "Not one thin dime. Everything I have told you is volunteer other than some minor transport costs for diesel fuel, for example, for US Tower to truck to Ontario and back to deliver the 11 meter terminal."

The concept that everyone in that room, from California, North Carolina, Iowa and the balance of the country would be able to be 'seen' on satellite TV (back on their home cable system) as a part of the coverage was overpowering. Hypnotic.

There was a trust here that everything I told them could happen would happen; with a minimum of fuss. In fact, if any one of those promises strayed from reality, the entire project would leave huge

amounts of egg all over CATA's face.

CATA President Ben Campbell:

"From the day CATA began we have trusted Coop and I cannot recall any time when he has promised to do something and then failed. I move we approve his plan." There was no further discussion - simply a vote and then the board went on with other pressing business. Such as dealing with the latest attack from the NCTA.

I listened and relaxed and then raised my hand in the middle of the NCTA discussion.

"I would like to propose that we invite Bob Shmidt (NCTA's head guy) to CCOS 78, and schedule a time within the seminar telecast for him to debate the merits of the various issues now before us"."

Smiles all around, Schmidt was a notoriously inept debater, smooth in his opening remarks, totally unable to deal with tough questions or challenges simply because he did not have the mind of a cable operator and had to rely upon his memory to recite what he may have been told by a real cable guy.

"Would he accept the invitation?" Laughter all around. Of course he would if we made it public and he would look bad for refusing. The CCOS 78 TV show was rapidly taking shape and before the Board meeting adjourned, even those who pondered my ability to pull off the complicated set of meshing events were convinced that it had to work.

I was out on the end of the longest limb I had ever tried to climb as pieces fell into and out of place with daily irregularity. When I went back to the Canadians who owned the 11 meter trailer transportable terminal in Toronto and verified we would come after it, they happened to mention that it was a prototype for which there was no complete operations manual and the last time it had worked, it had not worked. At all.

The FCC wanted to know how we would apply for a license to transmit to satellite. The guys who had volunteered their AFL/NFL mobile production facility found work for the week that clashed with CCOS leaving us without a production ability. Stormy Weathers at US Tower reconsidered sending his truck to Toronto and now wanted to be paid for not only the diesel fuel but for the man and truck wear and tear as well. As my budget was essentially nil, I had to find a way to cover these sudden expenditures.

Commercials? Hey, it worked for ABC, CBS and NBC - why not us? I first went back to Jerry Levin at HBO, a rapt follower of CATJ and their head man, and proposed they spend some money creating an 'infomercial' addressing cable operators who had not yet decided about

becoming a part of the HBO affiliate roster. He didn't even ask what the cost would be; I promised to schedule his infomercial 'between seminar sessions and over the full three days'. With HBO on board, it was a matter of one phone call each to line-up competitors such as Showtime. In the end we had 18 minutes of videotaped commercials to spread several times each throughout the three days. And enough cash income to more than offset the rising costs of the production and transmission.

Celeste Rule in a moment of reflection: "The amazing thing to me is not that you create these wild schemes - anybody on drugs could do the same. But that totally sane, conservative people when hearing your craziness actually agree to support them with cash or time or equipment is amazing!"

All of this was maturing from wild scheme to a schedule on paper throughout April, May and June at a time when on a parallel path the TV Guide article was nearing a publication date. There were some minor burps here developing. Professional photographer Shelley Katz, hired by the magazine, appeared on my doorstep in early July with the word the article was being rescheduled for late July. That caused a momentary panic because 'we' (Dana's Microwave Associates and I) were not ready - yet. A pleading telephone call to ask that it be bumped until 'at least October'. Unsaid, I had to get through CCOS and the last thing I wanted or needed would be people attending the cable gathering waving copies of TV Guide with me pictured there telling about my 'home dish system'; that would be the pinnacle of 'bad timing'!

Microwave Associates has been caught off guard, along with virtually every other equipment manufacturer, by the sudden interest of the motel industry in 'HBO satellite terminals'. MA was at best a very qualified high tech end creator of microwave parts. They had nobody on board who understood semi-professional or consumer marketing. When I told the home dish task force that Microdyne (manufacturer of satellite receivers) and AFC had created the first Holiday Inns contract by gifting a complete terminal to the home of the Chairman of the Board at Holiday Inns, they were flabbergasted.

"We don't do business that way!" was their response. Perhaps, but in the 'real world' people did that sort of thing all of the time. If they wanted to play in the sandbox, they were going to have to learn how to get dirty with the competition.

Dana Atchley took me to dinner that evening and asked point blank: "OK, you know about these deals or pending deals before

anybody else anywhere. What will it take for you to get us on the inside track?"

At home in Oklahoma I had a couple of Fred Collins hand built prototype MA satellite receivers. My first response to Dana was a hurtful truth.

"Your receivers are not very good - yet. Freddie knows his stuff better than anyone in this business but what he builds is equipment for skilled engineers to install and run. What we need here is something a total novice - the Chairman of the Board of Holiday Inns for example - can turn on, tune up and then change satellite TV channels, without a technical advisor."

He understood but worried that Fred was able to adapt to a more consumer world.

"Next is price. Microdyne gets 6-K ($6000) for their receiver. Hughes gets nearly ten and S-A - well, only a fool buys S-A. What we need is a receiver that can be sold profitably for say 3-K and a system that allows the buyer to stack multiple receivers for multiple satellite channels."

The original HBO service was now being crowded by nearly a dozen new services running the range from Christian programming (Pat Robertson's CBN) to Ted Turner's Atlanta UHF channel 17 (WTCG - later WTBS) and the first all-sport channel, Madison Square Garden (Events). A cable system purchasing Hughes receivers could quickly tie up more money in the one-channel-at-time receivers than he had in the antenna portion, and receiver pricing had to come down to allow the smaller cable systems to carry more than a single channel (or two) from 'the bird'. Even I did not envision that three years hence, satellite receivers would sell for under $300 dealer cost.

Dana suggested I talk with Fred about a lower cost receiver which was the entry I had hoped for. An engineer, Steve Birkill residing in England, had been experimenting with something totally new in receiver design and through me he was exchanging design ideas with Steve Richey. At the same time a Canadian, Rod Wheeler, had been running from the Royal Canadian Mounted Police who learned he was building 'private' satellite terminals for rural, northern Canadian communities. As this was against Canadian regulations (first having a private, unlicensed satellite terminal, second importing American programming), Wheeler was on their 'Fifty Most Wanted' list with his photograph plastered in RCMP offices throughout western Canada.

Wheeler and Richey, with my input, were using a Birkill design of receiver as a spring board for what would in July become the very first 'built-for-home-use' satellite receiver. The design was ingenious for the

time, something totally new and not only more sensitive but far cheaper to produce than anything S-A, Microdyne or that ilk were building. I wanted to keep it under wraps until at least CCOS but I was being paid by Microwave Associates to head up their 'private terminal task force'. A quandary.

Richey was making weekly, sometimes daily trips from his Oklahoma City hole-in-the-wall lab to my rural Guthrie (Oklahoma) home where he would plug into a convenient dish and work on the receiver design. Wheeler was putting up the dollars for Richey's prototypes. Brit Steve Birkill would be coming over for CCOS (at CATA's expense) to oversee the firing up of the uplink transmitter. How much of this, if any, should I share with Fred Collins?

Fred made it easier for me. I never knew where he came up with the concept, but shortly after my talk with Dana, Fred suggested a new receiver design on a blackboard in his lab. I watched as he drew and explained the circuit theory. Fred had noticed that Hughes' receivers used a different approach and by coincidence Hughes was halfway to what Birkill and Richey had developed without any external input. What they were doing was to allow two or more receivers to 'share' the same LNA (low noise amplifier) in a cost effective way. After drawing the Hughes design, he then asked what I thought about moving the first part of the receiver - the down converter - out of doors so that the actual indoor receivers could be further simplified and two or more receivers could share the same down converter. This put him on track with Richey and Birkill, minus the Birkill creation that gave the receivers an extra shot of sensitivity.

The concept of placing the down converter at the antenna was new (and as far as Fred knew at the time, original to him) and this change alone would drop receiver pricing by 30% or more. His mandate from Dana and my pushing had driven him to this innovation without my revealing anything about the Birkill-Richey design. Now he could create satellite receivers that would sell for around $2,500 - a significant improvement over the Microdyne and Hughes products and the design which allowed two or more receivers to be operated from the same down converter was a major step towards allowing cable firms (and ultimately motels and others) to pick off two or more satellite TV channels with a minimum of cost. Fred and MA now had their goal posts in sight - and CCOS 78 was 'game time'. I convinced myself Fred had arrived at the design without my revealing any confidences from the Birkill-Richey camp - about which nobody but I and Rod Wheeler even knew existed.

All of 1978 was an awfully good year for me. CATJ was so far ahead of anything and everything else in the newly emerging satellite and microwave world that it was attracting thousands of fans world-wide. The cable + satellite industry was off and running and while the FCC still required a license and normally insisted on antennas at least 4.5 meters in size, some 'special cases' were getting licenses for antennas as small as 3 meters. CCOS-78 was either going to be the finest, most exciting, technology show in the entire history of cable TV or - it could happen - a terrible embarrassment to all concerned. Then there would be the TV Guide article followed, not by accident, by the 2 minute 49 second feature report on Walter Cronkite's 'CBS Evening News' for October 31 where tens of millions who didn't read TV Guide would learn about my home 'private' satellite system.

Richey, Wheeler and I saw CCOS 78 as the opportunity to reveal the existence of 'low cost, private' satellite receivers. The word 'private' was carefully chosen - nobody wanted to talk openly about 'home' terminals yet - but we had convinced one another that 'private' was a halfway house to this ultimate phrase. Rod Wheeler had the most to lose because in fact he was doing 'private' (if not home, at least community service) terminals on a commercial basis in extreme rural northern Canada. He had many very amusing stories about avoiding detention at RCMP hands.

Rod first built his own 15 foot antenna and scrounged a terrestrial microwave receiver which he modified to satellite use at his rural British Columbia home. Like hundreds of others with that goal in mind, he had 'discovered' CATJ and began corresponding with me, sending photos of his antenna system. Chaps like Rod were going to make up my 'army' when I created the illusion that thousands of people - nay, tens of thousands - were doing the same thing all over North America; a message to the FCC to 'give up the licensing requirement' because they were not going to keep this genie bottled up very long anyhow.

Canadian television regulations were in the late 70s very much cast in stone. If you lived in Canada within rooftop aerial range of US TV stations, no problem; put up your rooftop antenna and watch the US if you wished. If you lived further to the north and you operated a cable TV system, you might (as many did) build huge 300 foot wide, 60 foot high 'Dew Line Parabolic' antennas that were capable of catching terrestrial TV signals from stations as far as 300 miles away - to the south in the USA. The quickest way to make big bucks in a hurry in Canada in the 60s and 70s was to drag in American TV and sell it via cable to anxious-to- view Canadian homes.

Canadian pride was challenged here. Canadian television was not 'that bad' but in a country of 16 million or so, it was difficult to create even one Milton Berle as a national icon. So the Canadian DOT (their version of the American FCC) deliberately created restrictions - unless you could erect a rooftop or cable antenna to catch American broadcasts 'direct', there was no legal way to otherwise import the elusive forbidden fruit.

Naturally satellite relay of HBO, WTCG, CBN and others changed all of that. As Wheeler quickly worked out, a modest size dish antenna (he started with 15 feet, was down to 10 foot diameter by the end of 1978) produced American TV channels well north of the Arctic Circle. Wheeler saw an opportunity to flaunt the authority of the DOT, and, make a buck or two. It was difficult - impossible perhaps - to create a satellite terminal in a Yukon Territory town of 2,000 without attracting attention.

Wheeler's plan was simple enough. Get the terminal built, turn it on, connect it to a low power TV transmitter so that any home in the community could directly tune in the American signal on a regular TV channel - collect his money and run like hell out of town.

But shipping a 15 foot diameter antenna plus the Ford Pickup sized antenna mount into a community such as Faro (NWT) was a challenge. How do you disguise it and how do you keep what you are doing quiet in a town where the local RCMP chaps knew everyone by their first name?

There was no answer. So Wheeler went first to the RCMP trio stationed there and somehow convinced them they would be local heroes if they turned a blind eye to what he was doing. They, with their families, also lived there!

He was two days into a three day install when a district commander for the RCMP made a routine visit to Faro. It apparently took about five minutes for him on the ground to hear about 'the new American TV channel' they were expecting on the air the next day. First he put his three Faro officers on reprimand, and then took off in a snow mobile to locate Wheeler. Strangely enough, not one person in town had any idea what he was talking about as he asked questions. Even the local Catholic priest feinted knowledge of such a project.

Undaunted the RCMP inspector spotted electric lights in an unusual location and went to investigate. What he found were empty packing crates that had originally been used to ship the giant antenna and mount to the town but no sign of an under construction satellite dish. By some collective subterfuge practiced by the entire community -

every last man, woman and child - the inspector ran out of time before locating Wheeler's nearly ready to turn on satellite terminal. At one point he drove his snowmobile across frozen ground to within twenty feet of the dish antenna but failed to search behind the building that was hiding the antenna. Thirty minutes after his RCMP plane left Faro, Atlanta's WTCG appeared on channel 4 on TV sets throughout the community. And so the legend of Canada's first 'satellite TV Pirate' was born.

Canadian's quickly learned that the RCMP would tolerate such infractions of the Broadcast Law provided a community became appropriately incensed. A year later at Pickle Lake, Ontario four hundred townsmen each carrying an axe handle or something potentially more lethal stood their ground and surrounded a four seat RCMP airplane that had landed with three mounties on board. The RCMP realized if they demanded that local RCMP officers shut down these unlicensed satellite terminals and TV transmitters, the local mounties would become permanently 'marked' and ultimately ineffective as lawmen. So they sent in outsider officers to do the dirty deed.

In Pickle Lake the three mounties stood by the side of their plane for two hours in an impasse with four hundred angry locals blocking their way into town. The locals had fortified themselves with several cases of Scotch whiskey and as the mounties stood around their plane, bottles of the stuff passed from hand to hand adding fuel to the fires of rage building in the town's folk. After exhausting the possibility they could 'talk common sense' to the locals, and either get them to turn off or turn off for them the TV transmitter, the mounties climbed back into their Cessna and left town. In these remote towns, if the mail plane was late there was simply no mail. If the grocery truck was snow bound, there was a shortage of bread. But if the TV was shut off - well, they guy who did it was either dead or badly bent for his unwise action.

In fact nearly 30 Canadian towns, well north of the USA border, had been enjoying American TV for approximately a year, courtesy of a Toronto resident named David Brough. He, like Wheeler, was passionate about delivering TV to these disenfranchised northerners and had worked out a very innovative way to pack ten hours of TV programming on a purposefully slowed down and heavily modified Betamax tape machine. In his Toronto apartment, connected to cable, Brough packaged up to ten hours of programming per day on a single tape and sent the tapes off on bicycle (town to town to town) routes throughout rural Canada. Brough would quickly become the Canadian

Government DOT's 'most wanted man' for his enterprise. And Brough would discover the joys of low cost satellite terminals while attending CCOS-78 in Oklahoma, thereby increasing his 'danger' to the Canadian establishment.

I liked these 'examples' of ingenuity because they provided fodder for CATJ which in turn sent strong messages to those 50 or so subscription readers at the FCC. In the mid-50s, the FCC had gone through a similar 'bad patch' with something known as 'boosters'. When the FCC's 'freeze' on new TV stations ended in 1952, dozens and then hundreds of new TV stations sprang to life throughout America (See "TELEVISION: The Technology that changed our lives" by this author). But because of terrain and/or distance, tens of thousands of small towns were still without TV even after the new stations came on the air. If a town was large enough, cable TV was one answer. But a town of a few hundred people, of which there were hundreds in Colorado alone, shielded by hills or mountains or separated by distance from the nearest TV transmitter, still had to go without. This inspired Wheeler-Brough like folks to find a local answer and 'fix' that problem. The fix was a small collection of parts wired up so as to receive a distant station and then rebroadcast it using modest power (such as 1 watt). The 'booster' station would be located on a mountain side or peak, supplied with power (many actually installed small generators which required weekly refuelling service calls - an interesting problem at 10,000 feet elevation in the middle of winter!), and connected to appropriate receiving and retransmitting antennas.

Like the Canadians two decades later in time, these were 'self-help' installations with absolutely no consciousness concerning their 'legality'. Nor was this a USA-limited phenomenon; far away in New Zealand dozens of similar installations were created in direct contravention of local law.

First the FCC had issued 'Notices' and then they upped the ante by issuing 'Warnings'. To make their point, field agents were sent into the mountains of Colorado to selectively shut down and confiscate booster stations. There were confrontations, as there would be twenty years hence in Canada. And almost without exception, within hours or a day at most, a confiscated booster was replaced with a new one.

By 1955 boosters had become a political issue in many western states. When, in 1951, a factory located in central Pennsylvania operated by Sylvania had installed what may have been the first 'booster', the FCC had flexed its muscles and, threatening dire consequences for Sylvania, shut it down. In this case, the Sylvania plant was located in

a valley area which TV signals did not reach, and the plant was building television set components. Naturally there were many technical people working there who considered the booster an important missing ingredient to their lifestyles.

Throughout western America, boosters attracted the attention of Colorado's Governor, and the state's two Senators, and others who somehow saw political mileage to be gained. The Governor issued his own 'warning' which said, "Any FCC personnel who attempt to shut down any booster station in this state will be subject to prosecution." Colorado's lead Senior threatened hearings in Congress, "to explore the reasons why rural residents of America do not have at least one television channel available." He too, was nearly twenty years in advance of his calling (the Torbett McDonald hearings of 1977).

The FCC backed off and some took this as a sign of 'tacit approval' for boosters. Actually, the Commission was regrouping and looking for a new technical answer. What happened next was predictable. From radio workshop bench tops throughout rural towns in the Rockies the design and manufacture of 'boosters' became commercialized. Only it had to be done without ever openly using the word 'booster'.

Canadian firm Benco, US firm Blonder-Tongue, already established as suppliers to MATV (master antenna television) and cable TV, created 'high power amplifiers' which just happened to include the ability to operate from 12 volt car batteries (thereby simplifying the problems associated with getting electrical power to a 10,000 foot peak in the middle of a blizzard). In Rapid City, South Dakota, a man named Keith Anderson formed a company called Mid America Relay Systems (MARS) and by 1960 had sold more than 500 'booster' stations. Some MARS customers went to extraordinary measures to snare television signals and transport them to their homes. Rancher Charlie Starr, for example, living on a 5,000 acre ranch in southeastern Montana, erected a TV receiving antenna on a rural hilltop straddling the Wyoming-South Dakota line to receive station KOTA-channel 3 from 90 miles away. Here he installed a booster and using a highly directional antenna beamed his captured channel north-west through the wilds of south-eastern Montana on channel 11 to a another hilltop, 40 miles distant. Here he installed a second booster station to act as a relay from the first, on channel 6, and then sent the signals through another 25 mile jaunt to a third booster station located on the perimeter of his property where he shot signal in two directions; 25 miles south-west to the small gold mining community of Weston (25 families) and to his own ranch house on channel 9. At the end of the line, his home and a

bunkhouse each with one television set finally had television.

None of this, or an estimated 2,200 other boosters, met any of the requirements of the FCC. But the agency, faced with something approaching an armed revolt in the western states, wisely elected to avoid public displays (shades of the 'Whiskey Rebellion' of 1786!). First of all, they were on unstable ground - to allow a wide scale (Congressional) investigation was to almost guarantee black eyes for the FCC. If the truth came out - as it finally did in CATJ's two Commission-shaking issues in March and April 1973 - everything about the FCC's handling of television growth in America would be scrutinized. This was an FCC already facing public criticism as high level personnel were accused of accepting mink coats and other bribes in return for voting for specific applicants for television channels.

Charlie Starr was therefore virtually 'bullet proof' as was Keith Anderson. They would get away with building and installing non-licensed TV transmitters in their hundreds and thousands because the Commission did not relish going into Congressional hearing rooms to face irate Western Governors and Senators.

Unfortunately, boosters did occupy a TV channel space and shortly there was little or no channel space left, for new ones, even in the mountainous regions of Wyoming (Charlie Starr, alone, 'used' 3 channels - 11, 6 and 9 to reach his home and bunkhouse). Moreover, booster operators were less than careful to avoid interfering with direct fringe area reception of full power licensed television stations. The Commission had to find an answer and fast.

The Adler Company (New Rochelle, New York) provided them with an escape valve. Adler had designed a unique kind of booster; it received the broadcast TV channel and then converted the VHF channel to a UHF channel at the top of the UHF band (channels 70 - 83). These channels were not in common use because they presented special problems to broadcasters. Laying fallow, unused, Adler struck a responsive cord at the Commission by suggesting the FCC create a new category of booster station; the 'translator'.

The Commission bought the concept hook, line and sinker. Perhaps without adequate investigation. The Adler 'translator' station first of all cost from 5 to twenty times as much to buy and install as a normal (VHF channel) booster station. They required large amounts of electricity to operate, were physically large which in turn required a concrete block or metal building to house and protect the equipment. Moreover, they were cutting edge technology operating at the upper limits of the UHF TV channels, prone to premature failure and expensive to maintain.

As Charlie Starr and hundreds of others had proven by doing, VHF boosters could be 'engineered' and installed by virtually anyone with common sense and perhaps $500 in his or her pocket. Adler translator stations ran closer to $20,000 for openers and required a highly skilled engineer to install and then to maintain. It took only a single family of modest means to afford a VHF booster; it took several dozen families of above average means to afford an Adler translator.

The FCC ignored all of this and mandated that as of a certain date, all VHF boosters must migrate to UHF. The date came and passed without action. A new date and a repeat. Meanwhile, a new breed of 'TV salesman' had appeared to invoke the Adler message. They found that if they went to a rural town, such as St. James, Minnesota, where TV was poor or non-existent, by offering the town a 'package' of one, two or three 'UHF translator channels' that the town could respond by shelling out the $20,000 - $100,000 asked for the installation. Some states adopted legislation allowing 'translator tax districts' to be created, defined as the 'coverage area' of a translator system. This in turn allowed for funding and an annual tax-bite for citizens in the area. A man named John Klindworth, headquartered in Minneapolis, refined this sales skill to an art. Dozens of Minnesota, Wisconsin, then South Dakota and Iowa towns, bought his story. Klindworth in turn combined the attributes of a cable TV system (building towers as high as 600 feet on which he installed receiving and retransmission antennas) with the 'wireless' delivery of UHF translators to produce first-time quality TV. Klindworth became a wealthy man, ultimately to reinvest his money in cable TV in such far off locations as the US Virgin Islands and New Zealand.

Into the middle of this totally unregulated fray jumped one Robert Britt Cooper, Jr. Everything about this attracted me. In was late in 1959 and as a young (21 year old) contributing editor to Hugo Gernsback's *Radio Electronics* magazine, I already had five years of professional, paid, writing under my belt. And a much larger than I knew 'reputation' (mostly good). Radio Electronics (RE) had decided, after ten years of providing space for 'DX' (far fringe area TV and FM radio reception) topics, that with the January 1960 issue it would terminate this subject. At RE, TV had grown to the point that most people now had local TV transmitters and long distance reception was no longer a reader pleasing subject. Silly Radio Electronics.

But they allowed me through my regular column to promote a new concept of mine, *'DXing Horizons'* - a monthly magazine which I would create in my spare time from a spare bedroom in Modesto,

California. Fresh out of Journalism school, working for the folks at the ABC radio network and a local Modesto radio station (KFIV), in January 1960 the first issue of DXing Horizons (DXH) rolled off the presses of Gowan Printing company and headed out to more than 5,000 people whom I hoped to entice with a sample magazine (or two) into subscribing.

My mother had loaned me $2,500 to launch the magazine and within six months she would be totally repaid. DXH was a hit from issue one (today single 1960 issues frequently command $50 and more on ebay; not bad for a magazine that had an annual subscription of $4 in 1960!).

DXH was one of the most convoluted 'mixed marriages' in the history of publishing. Imagine a monthly magazine for gays, lesbians, bible thumping Baptists, Catholic priests and Islamic terrorists. Not to say there are not gay bible thumping catholic priests - but not very many. DXH put between two covers the following splinter interest groups:

1) Operators of TV boosters (who hated everything about the establishment, more especially cable TV operators)

2) Operators of some of the nation's pioneering cable TV systems (who found booster operators to be competition making their life difficult)

3) UHF television broadcasters (who as the lowest of the low on the television totem pole had a natural inferiority complex)

4) Designers of fringe area television receiving systems (such as John Winegard in Burlington, Iowa)

5) And the 'DX' crowd - hobbyists who routinely spent their off-hours tuning around for distant radio and TV stations.

It was an eclectic mix at best and within 18 months DXing Horizons would self-divide into *CB Horizons*, *Communications Horizons*, *Television Horizons* and shortly *VHF Horizons*; four monthly (plus several semi annual and full annual) publications. From my bedroom it exploded, driven by investment dollars sourced from a Modesto (California) electronic parts distributor (David Hannah) and a ragtag mixture of advertisers.

Balancing the original reader interests in the original DXH was a significant challenge. I followed the pathway of least resistance - where there were advertising dollars, I went with editorial copy. At first it was the booster folks, then the cable folks, ultimately the two-way radio people.

We were one year old, out of my bedroom, into a rented office

facility at 1016 14th Street (Modesto) when the explosive power of 'just the right magazine at just the right time' hit.

CB Radio was brand new. A monthly column in Popular Electronics, conducted by Tommy Knietel, came out of New York as the only regular in-print coverage of this new 'radio hobby'. The FCC, in their typical blinders-on wisdom, created Citizens Band Radio as a tool for short range, personal communications. One of the first significant magazine articles, appearing in *Electronics World* in 1959, by Don Stoner, ended with the memorable question:

"Who will be the first person to work all states on CB radio?"

Stoner was advocating long distance communication using 5-watt CB radios; something much greater than 'short range'. The FCC rules (at the time - soon corrected) did not forbid such 'contacts' as nobody at the Commission had even considered this possibility. It was amateur or ham radio without the lengthy examination and licensing process; just buy the equipment and start talking. Stoner's gauntlet was a challenge many could not resist.

CB Horizons (CBH) was the mini-industry's first monthly magazine. I wanted the best writer in the business, Tom Knietel, as its editor and after three months of negotiation convinced him to give up his New York City life style (and fiancee) for the opportunity to create a magazine all about his passion every month. My negotiations were helped by his recent divorce from wife number one (Sarah) and a desire to be as far away as possible. Tommy, better known as TK, had a significant amount of 'baggage' to bring to Modesto. First there had been a siege with Polio as a youth. Next, he was the grandson of the creator and originator of 'Popeye' - the cartoon character which debuted in 1935 as a movie theater short (read the credits on The Cartoon Network for early Popeye cartoons and you will see a whole slate of 'Knietels' listed - including TK's dad). Finally, there was his lack of an amateur or ham radio license - something he had coveted as a youth but could never manage because of the Morse Code (to obtain a license) requirement. What cemented the 'deal' to come to Modesto was my 'promise' to help him qualify for a ham license.

CBH was the biggest instant hit ever. Thankfully, our first office was next door to our bank (a branch of the Bank of America) and we could send somebody to the teller window once or twice a day with $4 subscription checks to deposit. On some Monday mornings, the mail having accumulated over a weekend, we had more than 1,000 checks to deposit. $4 each.

BOA was in short time not impressed with our volume of banking.

We often deposited more checks for collection in a single day than the bank collected from *all* other customers in then same day. They asked us to 'move' to another bank!

Our printer, Gowans of Modesto, was equally stressed. DXH with a few thousand per month press run was one thing - CBH approaching 25,000 and growing like topsy was quite another. They were a 'small' family 'job print shop' and our only saving grace was that the magazine routinely stayed at 48 pages maximum per issue. But their sheet-fed presses (circa 1946) were hopelessly inadequate to deal with the volume of paper we were pushing through their facility each month. And they asked us to 'move' to another printing facility.

One TK story. In DXH, Tommy briefly served as associate editor. He had a long history of interest in short-wave radio broadcasting and knew more about the subject than anyone else I had ever known (including our very distinguished short-wave editor Ken Boord of Morgantown, West Virginia). The time was 1960 and Fidel Castro had not only taken over Cuba but was rapidly dismissing anything and everything relating to the United States from his country's soil. Some politically very well connected folks were having their holdings 'repatriated' by the Cuban Government under Castro. Everything about Cuba was changing including their attitude towards Americans.

Henry Cabot Lodge: Ambassador to the UN for President Eisenhower and former President of the United Fruit Company, a prestigious member of a New England family with roots almost as deep as my own there. And the Lodge family owned significant agriculture and other holdings in Cuba dating well prior to Castro. The Lodges were not pleased to be dismissed and helplessly watching as their plantations were turned into co-operatives for Cuba's non-land-owning peasants.

Swan Island. Possibly you never heard of it. Located at 83.56W, 17.25N, south-west of the Cuban mainland, modestly south of the Yucatan peninsula. Swan is slightly larger than a postage stamp, but not much (1 square mile). In 1863 the United States Congress assumed jurisdiction for this outcropping of coral and sand, although it was but 90 miles from the Honduran coastline. America's expansionist mood of the mid 1800s dictated this basically commercially useless rock would be added to a growing number of similar points around the globe.

In 1959, when Castro 'liberated' Cuba from Batiste's military regime, Swan was a remote (U.S.) weather station occupied by a trio of meteorologist chaps connected via a weekly small supply ship operating out of Tampa (Hamilton Brothers Steamship Company) and

occasional personnel representing the FAA (US Federal Aviation Agency). By June in 1960, with Lodge's Cuban assets rapidly turning to dust, something new appeared on Swan Island; a very powerful (50,000 watt) AM radio broadcast transmitter augmented by short-wave transmitters. 'Radio Swan' pumped a major radio signal into most of the island of Cuba and the content was decidedly anti-Castro. Curious journalists tried to get the United States Government to admit they were funding the activity, perhaps even operating it through some agency such as the CIA.

Jack Gould, Radio & TV columnist for *The New York Times* pondered in his April 5 (1961) column, "who is behind this station that appears to have brazenly assigned a very desirable frequency (1160 kc/s) to itself without any permission from any agency of the federal government?"

What nobody outside of a small cadre in Government knew at the time was the plan for invading Cuba ('Bay of Pigs') later in April 1961 and perhaps TK and I should have connected the message content of Radio Swan with the forthcoming invasion. Where all of this is leading is to my first encounter with grey-suited agents of the FBI cum CIA - who knew which?

TK had done his investigation well and the tracks led directly to the Lodge family funding Radio Swan's construction and operation. If the CIA was actually involved, they did a lousy job of disguising the fact when dealing with weekly shipments using the three Honduras registered ships M/V Don Emio B, Tropic Sea and Tropic Wind. TK managed in a day to get the sea firm to disclose where their checks came from to supply the island.

OK - we had the connection tied down, now the fun part. "Swan Island," said the third level press guy representing the US Government to a curious member of the press, "is not a US administered island. We have no jurisdiction there and if somebody wanted to establish a radio station on Swan, that would be their own private matter and might possibly involve some Central American country should they claim jurisdiction there." Double talk for, "There is no smoking gun linking Radio Swan to the US Government."

In fact, Swan Island, although 'annexed' by the US Congress in 1863, was by (a TK) search of land titles, 'owned' by a second mysterious New England family headed someone named 'Sumner Smith'. This man talked with TK, admitted he 'owned Swan Island' and claimed he was being paid 'rent' by the US Weather Bureau and the FAA for their facilities there. We never worked out how the US government

could annex Swan Island in 1863, and approximately 100 years later, it would be 'owned' by a New England family that just happened to have 'close relations' with Henry Cabot Lodge and his family.

Only somebody forgot to advise the FCC of this subterfuge. Enter my boyhood chum, John Markovich.

And amateur or ham radio. TK to me: "Hasn't there been FCC licensed amateur activity from Swan in the past?"

Of course there had been. Legendary ham operator Wayne Green, editor of many amateur radio magazines through the 60s and beyond, had most recently led a 'DXpedition' to Swan to spend a week or so. But 'most recently' was, we discovered, several years back.

TK: "My point is the US is denying it has any jurisdiction over Swan. If that is true, how can the FCC be receiving applications for and approving U.S. amateur radio licenses there?"

Indeed. If the FCC, somewhat distanced from those portions of the US government dealing with foreign policy issues such as Cuba, had not been notified of the larger government's denial of jurisdiction over Swan, how might they react if someone came along and submitted an application to operate an amateur radio station on Swan, under a FCC license? We were going to find out.

The amateur radio licensing bureau of the FCC was about as far removed from the full government as an agency could be and still claim ties to the federal establishment. My ham radio buddy, John Markovich, licensed by the FCC as amateur operator K6HTG, would complete a routine license application for Swan, I would write a covering letter (over his signature) describing a 'DXpedition' to Swan and we would file it like any other routine application. Hoping nobody at the FCC would even notice.

You know what happened. The FCC, an agency which would weave in and out of my life for decades, granted John the amateur license requested (amateur KS4BD) which proved beyond a doubt that at least at the FCC (emphasis on 'Federal' Communications Commission), Swan Island was still under US jurisdiction. Moreover, as TK would skilfully write, Radio Swan's activity had to be either sanctioned by the FCC or actually licensed by them for otherwise they were in violation of a host of 1934 statutes which dealt with operation of a radio station (within the jurisdiction of the Federal government) without a 'license'.

So now we had the story completed. TK had written evidence of where the funds for Radio Swan originated (the Henry Cabot Lodge family, which we and later Newsweek Magazine theorized was prob-

ably getting CIA assistance), we had the detail on how men and material were moved weekly back and forth from Florida to Swan, and finally we had the evidence we felt essential that the US FCC, a branch of the 'Federal' government, was in charge of Swan's radio licensing.

In our March 1961 issue of DXing Horizons, we teased readers with a promise to 'reveal' the 'truth about Radio Swan' and 'why it does not need to sell commercial time to exist', in the next (April) 1961 issue.

On April 21 the United States Government would launch the ill-fated Bay of Pigs invasion. But our March issue was into the mails nearly six weeks prior to that date. April's issue, in the mails three weeks prior to April 21, carried a photograph purported to be the control room of Radio Swan and a further promise that the May 1961 issue of DXing Horizons would reveal it all.

In mid-March, directly relating to our March issue 'teaser' concerning Radio Swan, I had a visit from two 'federal' employees dressed in grey flannel suits. At that point the April article was nearly complete; we had John Markovich's FCC issued Swan Island radio license in hand, and the full linking between the Lodges, Florida and Swan. Of course I had no knowledge that Bay of Pigs was imminent and looking back, I doubt the grey flannel suit dressed duo did either. But they had their instructions.

"We want to talk with you about Radio Swan," they began, having already flashed impressive badges that made me squirm in my office chair. Tommy Knietel had not yet arrived to take up his position with us; I was alone in what would shortly become our joint office. They closed the door to the office, thereby suggesting privacy, and began again.

"We can do this here or we can ask you to accompany us to 'the office'." It would turn out 'the office' was 100 miles away, in San Francisco. I silently voted for 'here'.

"Show us what you intend to publish," one began. "And your sources." I asked why they had any right to 'demand' this information making some boyish (I was 23 at the time) reference to the Bill of Rights and freedom of the press. The physically larger of the two repeated an early statement.

"We can do this here, or, in our office."

So here I was, an unimportant guy in a hole-in-the-wall office in Modesto, California sitting on top of something that had the potential to 'blow up' the plans that initiated when Eisenhower was President to retake Cuba for democracy. Only of course I was too stupid to put

it together at that point. And after ten minutes with grey flannel suit times two, too scared. I didn't know why they were after us, although TK had warned me going in that, "The Lodges have a great deal of high level political support - we may have some unpleasantness when this appears in print."

At 23 years of age, I was too naive to understand the dangerous ground we were crossing. And of course it would not be until we heard the first reports concerning the Bay of Pigs invasion that the penny dropped.

We did not run the story in April; perhaps had we, Bay of Pigs would have been modified, or even cancelled. When the story did finally appear, in our boyish enthusiasm we addressed several airmail copies to the Cuban Ambassador to the United Nations in New York with a totally silly cover letter, asking, "Could you arrange an interview with Fidel Castro on this matter?" This insanity accentuates why the U.S. Constitution does not allow someone under the age of 40 to be elected President of the United States! Would the Cold War have gone any differently lacking the festering sore of Cuba post the Bay of Pigs? One can but speculate. And in any event, we held onto the Radio Swan article because grey flannel suit times two, who followed up their visit several more times right up to and after the April DXing Horizons went into the mails, kept coming back to see us. The April DXH did carry an interesting news item: "Castro takes delivery of one million watt broadcast band transmitter. A recent shipment of materials from Czechoslovakia includes a one million watt medium wave transmitter. Castro has been repeatedly irritated over the activity of 'privately owned' Radio Swan which broadcasts violently anti-Castro messages." For the non-technical, '1,000,000 watts' would most definitely 'drown out' or 'block' Radio Swan's puny 50,000 watts for listeners in Cuba.

All of the ingredients the world would shortly recognize as leading into the 'Cuban Missile Crisis' were falling into place. A learned study of this era, a book titled, *'The Invisible Government'*, came to its own conclusions concerning Radio Swan and they devoted a chapter to the station where they reported that during the Bay of Pigs, Radio Swan was loaded with unusual messages. Example: "Carlos, the blue fish are swimming in the sunset." Whether these were genuine tactical commands to the invading American trained troops stranded on the beach at Bay of Pigs or merely psychological messages intended to 'scare' Fidel Castro's eavesdroppers is not known.

The 'Radio Swan story finally did run in the June CB Horizons (a new TK edited publication we launched that month), and in a July

follow-up, a photo I snapped just outside our office in Modesto that claimed to show John Markovich (crouched beneath a short palm tree), amateur radio operator KS4BD, 'on Swan Island'. The photo was the only phoney part of the report - at one point we had intended to send John to Swan through Grand Cayman Island had the logistics worked out. But this foolish plan came out in the multiple 'conversations' with the grey flannel suit times two (sometimes three) and once they knew this plan, John's arrangements with the air connection firm mysteriously blew away. I shot the clandestine photo with John, hunkered down under a decorator palm, in front of a Denny's Restaurant in downtown Modesto (not quite Swan Island but if you have been to Modesto in May, it was close!).

Postscript. In mid-1967 Tommy Knietel, now back in New York, talked *Electronics Illustrated* magazine into footing the bill for a chartered DC-3 which took him, editor's notebook and camera, to Swan Island. By this era, Radio Swan had grown into 'Radio Americas' and while there Tommy met a staffer who had been present during the Bay of Pigs operation, and who recalled rather vividly the June 1961 CBH revealing story on the station. Tommy's report appeared in EI for September 1967 but what he remembers most is the station staffer remarking to him, "how surprised we were with all of the detail you managed to glean about us back in 1961." Like I said - Tommy Knietel was the best in the business at the time.

This was not the last 'involvement' with Castro's Cuba I would have, but we are getting many years ahead of the story.

The FCC perhaps already had me on a 'watch carefully' list as early as 1960. Our 'Booster Topics' column in DXing Horizons was basically relating success stories and providing 'how to do' instructions for building these TV relaying gadgets. With DXH only a few months old, it had become obvious the magazine was turning into a full-time (as opposed to spare bedroom) avocation. My ex-Radio Electronics column had opened the door into a handful of commercial firms who became near-charter advertisers (Mid America Relay Systems, Blonder Tongue, TACO) but complete financial freedom from the daily grind of radio newscasts required more significant revenue from advertisers. What I lacked in experience was more than complimented by a total shortage of fear. My mother had taught me that if I wanted something, the first step was to ask for it! So east I flew in a series of hops that took me first to Rapid City, South Dakota (MARS) and then step by step eastward ending up in Philadelphia with stops at ten other cities and towns along the way. This allowed me to meet with the folks who designed

equipment (John Winegard and crew at the Winegard [antenna] Company, Burlington, Iowa), created corporate advertising budgets (Fred Shunaman at TACO in Sherburne, New York) or who existed primarily to maintain corporate profile and integrity (Selwyn Kramer at The Jerrold Company, Philadelphia). Being young and brash, it never occurred to me at the time that many of these folks were curious how someone of such obvious youth could be behind what was perhaps the most controversial electronics magazine of its time.

An example of being young and brash. Flying from an overnight stop to meet with DXH's short-wave editor Ken Boord in West Virginia, I found myself standing in a long line waiting to board a plane in Pittsburgh that would take me to Syracuse, New York. The plane was oversold and in those days the airlines did not ask for 'volunteers' to take a later flight accompanied by a reward of extra no-charge ticketing. They simply closed the door and left you standing in the ramp way. The oversold status was obvious to anyone counting the number of people in the line and knowing the capacity of the airplane. That I get to Syracuse was critical to my business trip and I expressed some dismay at being towards the end of the line. A girl, about my age, next to me, listened intently and perhaps for some reason felt sorry for me. She asked me to hold her spot (why anyone would want to hold a point beyond the logical cut-off was a mystery to me) and bumped her way towards the front. As the plane began to board, an attendant came slowly down the line and approaching my position I heard her softly saying, "Mr. Cooper? Mr. Cooper?" I indicated I was 'a' Mr. Cooper and she drew me aside.

"Your fiancee and maid of honor have explained your predicament. Follow me please."

Instinctively I shoved my wedding band finger and hand into a pocket and obeyed. At the plane's entrance waited the girl who had asked me to hold her place and another of similar age, all smiles. The stewardess motioned the three of us to follow her into the plane's open door and the second girl threw her arms around my neck and said very loudly for all to hear, "Mother will be so pleased that you did not miss our wedding!"

We were ushered to the last row of seats in the plane and sat together. I began to thank them both and they giggled and suggested I hold my thanks until the plane was filled, apparently worried I was going to say something that would give the ruse away. Once we were moving the two introduced themselves as college students returning to Syracuse University, and within minutes of being airborne the lead

stew arrived with a bottle of champagne "to toast the bride and groom!"

I arrived in Syracuse much better for the experience and somewhat out of full physical control. The two girls found it necessary to help me out to the baggage area where Fred Shunaman, sales manager for TACO antennas, was waiting to pick me up. Both girls gave me an affectionate hug, my 'fiancee' kissing me warmly in front of Fred, and then warned as she headed away, "Don't be late for the wedding, mother won't like that!" No, I didn't make the wedding and Fred gave me totally undeserved credit for being a 'clever fellow'.

A visit with Ike Blonder and Ben Tongue at their Newark, NJ plant for Blonder-Tongue (the former US Post Office for Newark) launched a friendship that would continue to the grave. Ike and Ben had begun building small amplifiers for distribution of television signals throughout apartment buildings in 1950 at Mt Vernon, New York in a rented loft. Ike was the master salesman, Ben one of if not the best design engineer in his field at that time. Both were well aware, in 1960, their 'apartment house amplifier equipment' was being utilized by 'TV booster' station builders. This presented them with a quandary. Ike's sense of corporate management instinctively told him BT should be active at the FCC and elsewhere in attempting to raise the 'standards' associated with TV signal reception and distribution. Over the coming decades, he would serve on numerous prestigious committees and write extensively in professional journals about his passion for 'standards' and 'doing it legally'. The booster folks were providing BT with an excellent revenue base but they were not 'doing it legally'.

We talked long about the precarious position of the FCC, facing several thousand illegal TV transmitters spread throughout the country, fearful of political or Congressional oversight if they clamped down too hard on these folks. My position was that if the FCC had not made so many mistakes in designing the national TV plan (1948 - 1953) the need for boosters would have been eliminated. Ike agreed but zeroed in on the nature of the 'Mexican stand-off'.

"There are two sides in this and they don't talk to one another. The booster people are afraid to have a conversation with a FCC guy and the FCC guy has instructions to avoid booster people under any but the most flagrant violation of law situations," summarized Ike.

A light went on in my head.

"Let's force them to talk with one another - create a situation where they come together in one place at the same time and perhaps with a moderator in the middle talk out their mutual problems," suggested I. Not bad for a 23 year old kid.

And so in the middle of 1960 the ground for the (first and only) 'Western VHF Translator (and Booster) Conference' was furrowed. DXH had the audience (our subscribers), Ike had the ear of the FCC and I knew or would shortly know enough manufacturers and would-be manufacturers of booster equipment to create a crowd. It helped that the FCC was for the first time seriously considering actual licensing of VHF boosters, now having reached the point where they believed that if the boosters could not be shut down, they should at least move into a regulated environment, and renamed 'VHF Translators'.

The Commission had set some tentative dates around which they would attempt to turn unlicensed boosters into registered members of the TV broadcasting community. It would be my job to first select a location, next to round up the attendees and then micro-manage a several day conference. Salt Lake City seemed like a suitable middle ground for the western states, where the majority of the boosters were located, and early March 1961 worked within the framework of the FCC's proposed licensing scheme. Ike used his top-level entree into the FCC to sell the concept to Commission personnel who would be invited to attend, some to actually speak in a conference format. He would also serve as the resident arbitrator for differences that were bound to threaten the success of the meeting.

First I culled the DXH subscription lists trying to pinpoint folks who were involved in the booster field. 'Two Corners, Colorado' as a mailing address was a flag. To each such (totally unknown to me) person I wrote a personal-looking letter explaining the forthcoming conference, and, believing that one booster person probably knew ten others, requested their help in reaching the ten I did not know about. Then we took several copies of the US Postal Service post office guide and located every community with a post office that existed in a geographic area that probably had poor television reception. This was a matter of locating the communities in an atlas, having already drawn 'coverage circles' for all TV stations on each state's map. If 'Two Corners' fell outside of normal quality TV reception range, we sent a piece of literature explaining the forthcoming conference, addressed to 'TV Booster Operator, Two Corners, Colorado'. In the same envelope, a recent 'sample copy' of DXing Horizons - just to drive home the fact that we were not some fly-by-night crazy group from California - and a letter created by Ike Blonder pointing out the need to 'better understand the options available to people who live where TV reception is of poor quality'. Almost every person in the TV reception world knew the name 'Blonder' from Blonder Tongue Labs. Amazingly, small town post

masters managed to deliver our 'Booster Operator' addressed envelope to well over 1,000 such people (in a small community, of course, if they had a 'TV booster' the post master knew who was responsible; indeed, I learned it was the post master himself in several towns!). I had a part-time employee assisting with this, one to later figure prominently in my life; Stanley Searle (see "TELEVISION: The technology that changed our lives," by this author).

In the 15 states making up the west, more than 5,000 pieces of mail in the first shot followed by a second layer just a month before the March gathering. By our records, 255 people from 24 states registered to attend and because of the successful effort to turn out a crowd a makeshift 'exhibit hall' was somehow created at the Hotel Utah (Motor Lodge) in downtown Salt Lake City. The Conference quickly grew into the 'focal point' for the FCC's new booster licensing scheme and the FCC managed to quickly arrange a tour of the western states by Commissioner Robert E. Lee in November 1960 as a prelude to the event. A photo of Commissioner Lee standing beside a highway road sign marking the Continental Divide appeared on the front cover of DXH in our December issue; clearly, we were in the 'big time' now. .

However - the majority of the booster operators did not trust the FCC's initiative. Asking them to 'come down out of the hills and register their boosters through a Federal licensing program' was a tad like going into the 'hollers' of Tennessee, waving a white flag, and soliciting amnesty declarations from moon shiners. In fact, many of the folks who had installed boosters were very possibly also making their own whiskey. A very significant percentage of those attending presented us with a dilemma - they refused to accept or wear name tags ("Joe Booster operator, Two Corners, Colorado"). But we needed some method of managing the crowds at Conference sessions - who could come into a closed meeting room, for example. The exhibit hall was open (for specified hours) to anyone who wandered into the hotel and it quickly became apparent about as many folks who finally did register and attend conference sessions stood 'outside' and only went into the public-open exhibit hall. They were a paranoid group, these booster operators!

So on the spot we worked out a solution - three kinds of quickly prepared badges, two color coded but with no individual name - simply 'Attendee' or 'Participant'. The attendee was a guy who refused to tell us anything but who handed over his modest attendance fee. 'Participant' was someone who filled out the registration information form - if reluctantly - but who did not want his name (or location)

identified. The third classification of name badge contained all of the usual information.

The hardware sellers had a field day, which instantly created an entirely new set of advertisers for DXing Horizons. One, Pat Quinn of Video Utility Company (Seattle), kept me smiling with humorous stories of people who left his booth after handing over several thousand dollars in cash but refusing to tell him their name or where they came from! Quinn (and most others) were selling the latest equipment to people who promised, "I will call you on the phone in your office and advise you when I will come by your place to pick it up." Quinn, being a clever fellow, worked out a simple system to identify who was calling and for what equipment - the sequential number in his order book became the buyer's 'code name'.

If nothing else, this one-time-only conference brought together rural people of similar interests and allowed them to meet a variety of skilled engineers such as Ike Blonder and Keith Anderson. MARS showed off a prototype all transistor (solid state) 1/4 watt 'booster' run by a solar cell panel connected to a car battery which would become the 'norm' by 1961-1962. The boosters were becoming smaller, using less power, and ever smaller they were unfortunately for the FCC significantly easier for the operators to 'hide' in very inaccessible spots. That many attending actually went home to complete the FCC licensing process is questionable; that DXing Horizons was now a spokes publication for the mini-industry was unquestioned. The die was now firmly cast in my mind. Any technology that allowed rural people to gain access to first time quality television would be my area of speciality and if, like TV boosters, the 'law' needed to be modified to make this possible - well, so be it. That was my 'grey market' mentality; 'pirates' were common folk, just like you and I, only missing something that we took for granted because of where we lived.

The 'original' pirates

The Rod Wheelers and David Broughs from Canada were the thin wedge of civil discontent that would shortly drive the home satellite revolution to become the first American-created new electronic technology in decades. It was important, as we headed for the major unveiling in TV Guide, that this not be the only 'publicity' outside of CATJ to be worshipping the new satellite god.

It was also essential in my mind that we stay away from 'home satellite terminal' as a description of the system until the very last minute. In March 1978, using an Oklahoma state conference of cable TV operators as a forum, I had for the first time demonstrated a ten foot diameter satellite dish. With the FCC now routinely granting licenses for 14.75 foot (4.5 meter) antennas, the next major step down was 3 meter (ten feet). I mounted a 3 meter dish on a suitable trailer, pulled it to the conference site in a suburb of Oklahoma City, and with 50 people watching went from being hooked to the back of a pickup truck to watching satellite pictures in something like 28 minutes time. To a boisterous round of applause. Not one person there, after we conducted some technical measurements, could see any reason why they should be out spending $20,000 for a 4.5 meter dish system when for $10,000 they could get the same results with a 3 meter. Of course the FCC was not going to be as easy to convince. The December 1977 FCC decision that made 4.5 meter terminals legal was a battle won against heavy odds; I believed the next step should be total elimination of the licensing requirement.

During the course of my ten footer demonstration, I said something I would later have cause to regret. A small Oklahoma cable operator

with 200 subscribers asked, loudly, "So - if a ten footer is so adequate, what about a 8 or 6 footer?" Curious minds wanted to know.

My answer ran like this.

"When the receiver sensitivity is good enough, and the low noise amplifiers are good enough, a six footer will produce the same quality picture you now see on the screen (HBO) here."

His response. "How long might that be - I don't want to spend $10,000 for a ten foot system if we can wait another six months and for $5,000 or so I can do the same thing with a six footer."

And my regret-it-later response. "Come by my house after this meeting and I'll show you a six footer that is already doing what you ask."

To a person, all 50 followed me home, including CATA President Kyle Moore. Foolish me. I was going to have to be very-very careful because at home was a Steve Richey / Steve Birkill prototype receiver working with a Fred Collins supplied low noise amplifier. These would in a year become the standard ingredients for six foot (and later four foot!) systems. Everything was out in the 'open' and there was no time to go ahead and disguise what they would see.

As the cars parked around my 5 acres, I stood on a ladder next to the 6 foot dish and made an announcement. "What you see here is my own system. It is not for cable TV at this stage and it may never be. As CATJ's editor I have been in communication with a number of folks around the country who have special skills when it comes to creating microwave reception equipment. Some of that equipment is here. None of it you will see is from a name brand manufacturer and perhaps none of what you see here will ever become a manufactured product. This is a 'play zone' where people like you and me come to experiment, to try to work out just what the limitations will one day be for small dish reception terminals."

And then I added, "Oh yes - I would appreciate it if not one word of what you see here is spread around the industry. I don't need phone calls from people in New York or California asking where they can buy a six foot system!"

They stayed until it grew dark. They touched, and pushed and pulled on the antenna, and a few who could spell microwave poked and prodded inside the unlabelled Richey-Birkill receiver. Two guys who would later prove they were capable of designing microwave equipment asked me some pointed questions about the receiver's circuits and I declined an answer by pretending I did not know the intricacies of the design.

Just as the last was leaving, by happenstance Steve Richey drove up with modified receiver boards for some 'play time'. He was not pleased when he found out 50 people had been there fingering his circuit board creations and for nearly two weeks would not speak to me. I blamed him not; it had been a risky, foolish thing I did. And for no good reason other than my ego.

One year earlier, 1977, it was suddenly clear to me that as I was hopping around North America covering various stories, it would be equally helpful to have some of these people I was interviewing and places I was visiting 'on tape'. That's videotape. I proposed to CATA's board that they approve a modest budget to do just that - begin to build a library of material which would, one day, be available for another wild and crazy idea - an hour long weekly TV show to be distributed by satellite to the cable TV industry. It would all bear fruit in September 1978 following the nail biting success of CCOS 78 on satellite.

So the videotapes began to pile up on a shelf in my home and office. A major reason why this worked was Dana Atchley III, the son of Microwave Associates chairman of the Board. D-III lived in a remote area of Colorado (Crested Butte) where he dabbled in video production for PBS and others using equipment funded by his father. Dana III's life style was similar to the hippies living in San Francisco in the 60s, transplanted to the Rockies. He was typically ready to hop into his 30 foot mobile production van and meet me in places like Travelers Rest, South Carolina or Bisbee, Arizona on short notice.

The early interest in the one-hour-weekly TV show was a major reason why I was crazy enough to suggest to the CATA Board the plan to create a live uplink feed for the three-day CCOS-78 gathering. I had the enthusiastic support of Dana Atchley at M-A, and D-III promised to come early and stay late to co-produce the approximately 20 hours of live TV that we hoped would go coast to coast and Mexico to Canada via satellite. As a backstop to filling 20 hours (6 day one, 7 day two, 7 day three) D-III and I began working on 'vignettes' - short 'filler' pieces which could be ready on tape and dropped in when everything in the live department came crashing down around our heads. CATA's Celeste Rule had spent some years working for a major Oklahoma City advertising agency and she knew and understood television production. I enlisted her aid in the scheduling part. My concept, taken out of thin air because for pioneers there is no blueprint to follow, was to treat the three days as an expanded TV schedule. We would have one primary studio with two sets and an 'announce booth' where one person could

squeeze in, sit down, and against an appropriate color keyed background fill between segments. Celeste urged me to expand the announce booth and use an automated camera so that two people could sit or stand there for a few minutes and the director would select that camera and microphone to put 'on air'. This would free up both sets, the one we were just 'coming off' and the one that had been readied for the next conference session, allowing people to quickly move around the full studio and make last minute adjustments ("Does my hair look OK? Where is the audio on mike two? Move to the left six inches and sit down again.") without interrupting the on-air flow. We may have been 'amateurs' but this would be the real thing; Baptism under fire.

Most conferences involve sizeable seating rooms, a stage or elevated area for the presenters to appear, and some form of audio-visual support. I elected to not even try to do this; into the cramped studio + production room we could barely cram all of the equipment required. Fortunately, the El Paso sourced mobile production van could sit immediately out a door off the studio area and a wild and crazy associate of Dana III, Norman Johnson, would be the on-air producer. Norman operated best when totally alone; anyone who dared enter the mobile production van took their life into their own hands. It also helped if you wore a gas mask because Norman consumed more marijuana cigarettes per hour than today's Fox News reminds you, "Fair and balanced Reporting: You decide."

CATA President elect Ben Campbell. "No meetings rooms? How will people ask questions? How will they participate? The best thing CATA ever did was to make the conferences two-way with audience participation."

TV coverage of conferences usually involved a couple of cameras - one set up to focus on the presenter or stage area, the second to catch audience reaction. Unfortunately, the audience often dozes off and the 'crowd' shots show people sitting stiffly in their seats, ties tight around their throat, snoring.

Another approach is 'talking heads' - one or at most two cameras and the folks doing the talking fill the screen, often from shoulders up. After a while, one tires of counting the nose hairs in the person speaking and you, too, doze off.

My uncharted approach was to borrow a page or two from Phil Donahue's book on live television, create group discussions bringing together people with totally divergent views on a common subject and then add a moderator to keep the mix going. None of this was easy to

explain to Campbell - or anyone else for that matter (other than Dana-III who thought we could pull it off).

CATA President Campbell on his second favorite subject. "Tell me again - how much is all of this going to cost CATA?"

My favorite dollar and cents response. "A dollar ninety eight, plus tips." Ben once told me, after the event, "It was the tips I was most worried about." As his first year as CATA President, the last thing he wanted was a huge stack of 'unexpected' bills at the end. The next to last thing he wanted was an irate membership complaining about not being able to actually participate in the conference sessions after travelling to the Oklahoma state lodge.

In addition to 'going out live' on satellite, a volunteer crew would hurriedly rewire the Fountainhead Lodge at Eufaula, Oklahoma to allow several channels of temporary television to go into all of the rooms, including the bars and foyers. We would videotape everything sent out and replay the tapes a second or third time as well, locally. As May wound into June, only the passage of the next 60 days would verify (or vilify!) my wild-haired scheme.

CATJ for May 1978 carried a most unusual 2+ page 'promotion' for CCOS 78. It said things like, "The space left over (after giving last year's attendees the first option of reserving accommodations) is the space which is now being offered to the balance of the industry on a first-come, first serve basis." In fact, we were taking over not one but two Oklahoma State run lodges - Fountainhead for the show and Arrowhead - a 30 minute drive away - for the overflow. It noted, "Requests for accommodations arriving after all Fountainhead and Arrowhead rooms are filled will simply be returned." The announcement outlined the seminar sessions planned, but did not say one word about the uplink terminal and satellite carriage of the event. In early May, there were simply too many loose ends to tie down before making that kind of commitment in print.

For the cable industry at large, a much larger event occurred on April 26. The FCC, by unanimous vote, lifted from (499) 500 to (999) 1,000 the cable system subscriber 'size' which would be exempt from any and all rules and regulations. The impact would be immediate but for some, as Kyle Moore editorialized in the May CATJ, it was too late.

"The fear of FCC bureaucracy has been a very real and very legitimate concern in the small system marketplace for far too long. Hundreds of system operators have teetered on the brink of selling out for as many as six years because of that fear. In the process of selling out we know of many fine, skilful and talented operators who are no

longer a part of our industry. The loss of their pioneering skills is very real indeed. There is not now (nor has there ever been) anyplace in the 'free marketplace' for bureaucratic meddling. Washington bureaucrats have never been able to perceive just how deeply their rules and regulations cut, how many personal lives are affected by their morass of largely idiotic rules and regulations. In the instant case of small cable system operations, there has been unmeasurable loss to both the industry and the public served by smaller systems during the 'six year fear'. It is a sad lament on the bureaucratic processes that there is virtually no way for those adversely affected by bureaucratic dumbness to go back now and sue for damages, and collect."

What did it really mean? That the cable TV industry, invaded in 1972 by a heavy handed newly created bureau of the FCC, was being reborn. For six long years, federal rules meddled in every aspect of cable system operation. They dictated which channels could be carried on the cable systems, from where. They mandated technical standards and a regimen of testing procedures to achieve levels of service. They sent cable operators back to their communities to renegotiate franchise permits to operate.

And then suddenly, as quickly as the locust storm descended, it was gone if your cable system served fewer than 1,000 subscribers. But in that six years, many cable operators sold out, some actually stopped operating, not a few were forced out of business because the rules created scenarios that allowed non-local firms to move in and take over their assets. Those who sustained the six year blight were forced to refinance their systems so they could meet the new federally mandated standards with test equipment they required only once per year to conduct FCC tests, and now did not require at all. I can but speculate how this intrusion into cable television affairs by an overzealous bureaucracy changed so many lives, mine included.

For example, my little CADCO firm was rolling along just getting up a head of steam when the new rules essentially shut down interest in building new small town cable systems. That in turn pushed me to locate one Joe Driscoll as a financial partner which ultimately led to the scenario which saw me leaving CADCO. Of course without the FCC's meddling, there might never have been a CATA and its companion CATJ. And without CATJ, well ... would there have been a 'home dish' industry launched in 1979? All conjecture, unworthy of more than a few lines here.

It was the constant pounding by CATA, the barrage of 'can you believe this???' reports in CATJ and the fight put up by individual cable

operators that achieved the result. But, as Kyle penned, "...there is virtually no way for those adversely affected by bureaucratic dumbness to go back now and sue for damages." It had not been the finest hour of US government intervention into privately operated businesses.

CATJ for June 1978. In my 'Coop's Column' I finally felt comfortable revealing the great uplink experiment from Fountainhead Lodge, relating the 11 meter uplink terminal, owned by Canadian cable firm McLean-Hunter, was stored near Detroit (in Ontario) on a pair of 40 foot lowboy trailers. Think about that. Two 40 foot trailers loaded with precision formed chunks of steel and aluminum with a self-contained 'transmitter hut' for the powerful uplink electronics. Somehow, with no real experience, a group of volunteers led by ex-CATA antenna man Tony Bickel (who by now, true to his life story, was ex-USS Tower as well) would turn six tons of metal into a functional 36 foot diameter earth-to-satellite transmitting antenna in a few days time. Nobody, not even I, had any real concept of what that really meant. Nor that within 20 years a complete uplink system installed in a normal sized SUV would be able to drive to a site and be transmitting live coverage back to satellite (and the world) with only minutes of set-up time. Such were the major advances in technology barely around the time capsule corner.

Another important announcement in the June CATJ. Religious telecaster Trinity, operating TV station KTBN in Fontana, California, was added to the satellite-available roster. KTBN, unlike PTL (People That Love) and CBN (Christian Broadcasting Network), was a 'normal terrestrial TV station' (PTL and CBN were satellite-only packaging of programming not seen via terrestrial TV). What this meant was an entirely new class of terrestrial rebroadcasting station was about to burst onto the American TV dials. Trinity had been lobbying the FCC and Congress to gain a new ruling to permit TV stations such as itself to link via satellite to low power rebroadcasting stations scattered nation-wide. Trinity saw this as an excellent, low-cost way of spreading its limited southern California reach into a national network. I am partially to blame for this as TBN had 'picked my mind' incessantly throughout 1978 gleaning important insight into how their ultimate system might one day work.

Not everyone saw this one coming; almost nobody saw it for what it would ultimately become. Trinity's unique brand of religious programming featured Jan and Paul Crouch with the skills to turn normally conservative religious families into activist messengers for TBN. Somebody at TBN, perhaps Crouch himself, had the 'vision' that by encouraging local groups in Tulsa, Poughkeepsie, Sneedville and

Spokane to raise local money, they could turn into 'TBN affiliate stations'. The concept they preached was simple enough - raise $50,000 to $100,000 locally, let TBN guide them through the FCC licensing process, and wham-bang-thank-you -ma'am a new TV station would come on the air (in Tulsa, etc.) carrying the Crouch-version of the word-of-God. Thousands would ultimately do so, making TBN the largest single 'network' in the world, and by year 2000 TBN would be global into such far flung locations as (the) Tonga Islands, India and Africa.

Just as the satellite dish industry was gathering speed (in January 1976, ten applications to the FCC for dish system licenses; January 1978, 53 such applications), the United States government did one of those things which few see affecting them - until it does. The import tariff on aluminum sheet was cranked upwards, ostensibly to protect US manufacturers against Japanese imports, and then a nation-wide winter strike at coal production sites greatly increased the costs associated with US aluminum. Raw aluminum, of which a 6 meter antenna consumed as much as 3,000 pounds worth, rose to a dollar a pound. And this was before the aluminum 'sheet' was fabricated into a satellite dish antenna. Suddenly it was no longer economical to create satellite dishes from the desired metal. The technological answer was something brand new to the satellite world - fiberglass resins imbedded with tiny flecks of metal so as to combine the strength and physical integrity of a fiber formed panel with the signal reflective qualities of a metal surface dish. Primary antenna suppliers such as AFC and RF systems appeared at the New Orleans NCTA trade show early in May with the first generation of non-aluminum satellite dishes, starting a new trail which would over the next few years see virtually all antenna makers abandon solid sheet aluminum for their antennas. What nobody foresaw in mid-1978 was hundreds of small firms building fiberglass boats, bar-b-ques and lawn furniture in 1980 and after, jumping into the satellite antenna field with 'home dish' products using the same technology. Had the US government not created a tariff change in 1978 that suddenly disfavored aluminum sheet, the low cost home terminal explosion a few years hence might never have happened. Plug that into your Harvard MBA hypothetical business plan and see where it leads you!

Biting the hand that feeds you. In June 1978, the 11 cable TV programming channels that had exploded to satellite following HBO's sign-on (September 30, 1976) 'moved' from RCA F2 to RCA F1 satellite. The F2 satellite had allowed cable TV to get started via satellite but it was rapidly running out of available transponders for new chan-

nels that wanted to get on the bird. The satellite-to-satellite change took place on June 1, largely without serious incident (a few cable systems learned theirs had been incorrectly installed, including CBN's uplink antenna, causing some minor annoyances). But in the following weeks, satellite signals as received by nearly 500 installed terminal systems began to waiver; seriously in some locations. CATJ was on the case (July 1978) with the perhaps ill-thought out lead, "Is F1 a sick bird?" RCA's head guy, Andrew Ingliss, in responding to my CATJ probing, gave us a stonewall answer he would later regret.

"RCA Americom's F1 satellite is operating normally and can only be characterized as being in excellent health."

Which totally ignored the essence and detail of my detailed 'Coop's Column' for July - which I had the courtesy to share with his office for comment prior to publication. The CATJ article, and what followed in later issues, laid the ground work for an unprecedented visit by Microwave Associate's Duke Brown, myself, and a camera crew on loan from NBC New York to RCA's flagship Vernon Valley (NJ) master uplink control center in September of the year. In a nutshell, try telling someone with a $125,000 receive terminal in Texas, "the satellite is operating normally," when their HBO pictures were being buried in 'snow storms' (or as the satellite guys termed weak reception, 'sparklies').

Here I was 'goading the gate keeper' (RCA) just a month prior to their most generous agreement to allow us, from Fountainhead Lodge, to 'use' their satellite to transmit three days of CCOS-78. Worse than that, we had scheduled (and promoted) a 'special report at 12 noon CDST July 19 from CCOS 78' concerning the true health of the very satellite we would be using. Either dumb, careless or incredibly brave on my part.

Talking to the satellite

The great uplink adventure. Immediately on the heels of CCOS 78, the August magazine related how it went including the minute by minute uncertainty as to whether it would work. A recitation of the proverb most familiar to pioneers, attributed to someone named 'Murphy'.

Murphy's Law: "Whatever can go wrong will go wrong, usually at the least opportune time."

The twin 40 foot low boy trailers carrying 12,000 pounds of antenna and an 8 by 8 by 16 foot self contained uplink 'building' was supposed to reach Fountainhead Lodge June 20th, four weeks in front of the first telecasts. It did not appear until July 9, barely 8 days to turn-on time.

A manual packed with the system recited 'six men in 8 hours' (or 48 work hours) as the target assembly time. More than 900 very heavy galvanized bolts, 1,200 separate non-bolt formed metal parts came out of the packed trailers. Ex-CADCO antenna designer Tony Bickel was the 'volunteer' in charge. Forgetting time to eat, pee or stop for a break, that worked out to 350 bolts/parts per man in 8 hours time - 44 parts per hour (one every 80 seconds non stop for 8 hours). Bickel began with four volunteers on July 10, a number that grew as word spread of the desperate situation CATA was in. Folks who had scheduled 3 days grew that to 5 or 7 to be on hand wielding a wrench, lifting parts, running wires. By July 17th, more than 100 'volunteers' were putting in 2, 8, 16 or in the case of a handful of highly inspired individuals, 24 hours, without stop. Bickel would log 5 hours of sleep in 100 continuous hours of work. So 'infectious' was the project that

nearly a dozen tourists staying at the Lodge just prior to the CCOS show there came out and began volunteering their time and skills to building the satellite dish. Tourists? People who could not even spell cable TV.

From the first day the assembly manual made no sense. But it was 'the' manual and as nobody at Fountainhead had ever seen such an antenna previously, it was 'the bible'. As Bickel would later reveal in a classic 20 minute CCOS television show, "We were on about page 82 when someone noticed the antenna we were building from the instructions was a 9 meter (diameter) monster, not the 11 meter we actually had." Wrong manual, not that it helped that much anyhow!

RCA had loaned CCOS an Atlanta based satellite engineer named Don Pidgeon, a southern gentleman with a drawl that matched his dry wit. In defense of the manual, Pidgeon would allow: "You must realize that the manual, suggesting 6 men and 8 hours total time, was probably more or less correct because it assumes that the six people working on the antenna are experienced with both portable uplink antennas and this particular antenna. But the manual has to be the figment of some tech writer's imagination because there is no such thing as an experienced crew with this antenna. Once a crew puts one of these together, there is no way you could ever convince them to do it again!"

This might be a good time to ask a question. What would motivate people to volunteer themselves for such a mission?

Camaraderie is one possible answer. Cable operators are lonely folks, often working alone, seldom with their peers (each town having its own operator, and somewhat removed from the activities of others even in adjacent towns). The satellite 'thing' is another. Everything about satellite was brand new and here were people assembling a broadcasting station that would link their forthcoming meeting to thousands of similar folks from the Yukon to Yucatan, Boston to Bakersfield. Just being able to tell their grandchildren, "I was there and I helped with the construction," was another motivation. In fact, we did not know it at the time but nothing like this would ever occur again.

But perhaps the most motivating factor of all was the 'small guy' syndrome. CATA represented small town cable operators, some barely with a pot to pee in. The folks who were attracting all of the attention were members of NCTA, promising to (or actually) wiring huge markets such as New York City. The 'big guys' needed their 'comeuppance' and this was going to be one way to shove something up their nose from (of all places) a state-operated public lodge in the outback of

Oklahoma.

Rather than 48 man-hours, the unpacking, parts sorting, and assembly of the 900 bolts and 1,200 fabricated metal pieces making up the 6 ton antenna required something approaching 2,000 man hours. Hey, we were 'first-timers' and amateurs at that! First of all there was the weight. And the height. When completely assembled and functional, the top of the antenna would be more than 60 feet in the air; as tall as an 8-story building. In fact, it dwarfed the lodge facility it nestled against. You might think somebody would have thought of arranging a crane to lift parts weighing 500 pounds 60 feet into the air. We did not.

The 11 meter dish had to go onto a tripod constructed one bolt at a time to reach more than 25 feet in the air. The tripod was assembled laying on the ground like a giant, squashed, letter 'Y' and when complete, the apex of the 'Y' was hand cranked with a system of pulleys and winches until it was in position (with the dish attached) to place the elevated dish where it could then be (somehow) maneuvered left and right, up and down to locate the RCA F1 satellite. The challenge here was roughly the equivalent of placing a #10 sewing needle on the ground and taking a roll of #40 thread and trying to 'drop' the end of the thread through the hole in the needle from a height of ten feet. With the wind blowing.

As the antenna construction progressed (it would not be ready for testing until 3 hours prior to the second scheduled telecast while RCA and the FCC were still demanding 'proof of performance testing' before we could go 'on the air'), a subgroup tackled the 8 by 8 by 16 foot trailer housed 'equipment building'.

To reach the satellite from a distance of some 27,000 miles (Oklahoma to the satellite location above the equator) required a relatively powerful transmitter; 1,000 watts, or so we were told. In 1978, perhaps fewer than 100 such 'uplink transmitters' had ever been created and they were scattered from Russia to Indonesia to the unlikely location of Fountainhead Lodge. Cable TV folks, volunteers all, were 'reception' people, not 'transmission' folks. RCA's Don Pidgeon was an experienced transmitter guy, but he alone could not single-handedly make the equipment in the portable building 'fly'. So I had arranged, as a part of the CATA expense for the show, to bring Steve Birkill from Liverpool, UK to Oklahoma. Birkill had two things going for him. First, he was a BBC transmitter engineer with two decades of microwave experience. Second, and this was my 'real' reason for getting him over, he along with Steve Richey had created two very revolutionary design

improvements in satellite receivers. What Birkill and Richey had done, quite to the ultimate annoyance of the cable industry, was to shave the cost of a functional satellite receiver from thousands of dollars to hundreds of dollars. After 8 months of 'connecting' Birkill and Richey via telephone and fax and letter, it was time for the duo to meet and bury themselves in hands-on experimentation. CATA never knew it (said he with no embarrassment), but the air fare for Birkill brought him to Oklahoma where he could become closely acquainted with the skills of both Steve Richey and that Canadian malcontent Rod Wheeler. All of this was leading up to the now-scheduled for October TV Guide article that would blow the lid off of satellite TV.

Finally, there were Rod Wheeler (who turned out to have unknown to me transmitter skills), Peter Warren from a religious broadcasting group in El Paso, Duke Brown of Microwave Associates and CATA Board member Ralph Haimowitz from Florida who had the CATA member's mentality about transmitters ("keep your hands out of the high voltage section!") but the enthusiasm of a man possessed.

Some preliminary notes. What it took in the 70s to create 1,000 watts of microwave energy was around 6 electronic equipment racks, each six feet in height, crammed full of delicate, one of a kind electronic parts. Half of these racks were 'power supplies' - that portion creating the low, medium and high (20,000 volts) energy to fire up the complex string of radio signal generating parts.

There was no manual describing this. Not one page.

Bickel did locate a 'transmitter log book' used by previous terminal operators to record unusual operational notes; it was carelessly crammed into a transmitter 'cavity' where a family of mice had spent a previous winter, shredding the book into comfortable beds! But that discovery was after the fact - past the point where the cribbed notes inside in an unknown author's printed verbiage advised, "Unable to make the transmitter operate - believe failure of IPA (intermediate power amplifier) power supply is at fault." Of course our crew uncovered this cryptic warning after they - too - were unable to make the transmitter turn on.

There were two closely related activities underway here. The antenna, without which the transmitter was of no value, and, the transmitter without which ... . Rod Wheeler was assigned (or volunteered - time dims the exact fact) to climb into the center of the 60 foot high 11 meter antenna, crawl out a 6 meter long aluminum arm and somehow fasten himself to the focal or feed point of the antenna dangling like a fly caught in a spider web. There he had two tasks. First,

to mount the delicate 'feed antenna assembly' (which required a precision adjustment to the nearest 2 mm) and second to connect to the feed two pieces of heavy duty coaxial cable. The first was the transmitting cable and the second was the simultaneous reception cable.

All of that would be difficult enough but the climate made it far worse. The air temperature in rural Oklahoma on this mid-July day was 101 degrees F. Worse than that, the 11 meter antenna was a huge parabolic sun catcher. And the sun's rays intercepted by the dish during the late afternoon were amplified and refocused on Rod at the dish's focal point. It took him 45 minutes on being suspended by ropes lashed to the feed posts to complete the mounting and connections. In that period of time, the solar heat was so intense that his eyebrows were singed, then burnt to a crisp and his face two days later developed blisters that left him permanently scarred for life.

Again I ponder, why did volunteer people risk life (and limb) under the most extreme conditions for this event? Wheeler would later relate to me, "Coop (you) promised we would do this. If I had it in my power to make it happen, it would be done." Those words still bring tears to my eyes. So too the color photo appearing on the front cover of CATJ for September 1978; the huge (as in bigger than hell) 11 meter terminal, standing tall on its tripod legs, dwarfing everything in the camera range (including the workers climbing about the superstructure).

We were scheduled to 'be on the air' three days; July 17, 18 and 19. We would not make the 17th; Wheeler still had not 'hung' the feed, and the transmitter - well! That it was not co-operating was evident by late on the 16th. Birkill's special skills pinpointed the problem a couple of hours prior to discovery of the faded, mouse chewed 'transmitter logbook'. Actually, Steve believed there were two problems. The IPA power supply, as the logbook suggested, and a fancy 'klystron' device which upped the power from a few watts to a few tens of watts in the chain to the 'final amplifier'. We had enough 'talent' on the premises to work around the broken power supply (although a TV set in the Lodge would never function again after somebody robbed parts from its own power supply!). The defective klystron was quite another matter.

A klystron in 1978 was about as common as a 11 meter dish in my backyard. This is not a part stocked by the local (Tulsa or Oklahoma City) electronic parts houses. But who might have one - not 'one' but 'the' one - within a serviceable distance?

As we would later discover when the time came to communicate directly between our terminal site and the RCA control center in Vernon Valley (essential for the turning on of the terminal transmitting to the

satellite), in this 'pre-cell-phone' era, talking from a grassy slope adjacent to the lodge to some distant point was an exercise in futility. In an hour, someone ran a piece of TV coaxial cable as a substitute telephone line so the 'transmitter hut' now had a telephone. Then the search. It was approaching 5PM CDST on the 17th of July. What we needed was a device that might exist world-wide in single digit quantity. And within air range of eastern Oklahoma? Fat chance.

But good fortune smiled on us, once again (up your nose Mr Murphy!). Ben Campbell, CATA's President, had an unlisted telephone number for an engineer at Collins Radio, Dallas. Collins manufactured microwave transmitters and perhaps - just perhaps???

Parked within a 15 minute drive, several CATA member's private airplanes. Campbell located his engineer acquaintance (soon to become a friend!) and explained the situation. History does not record the Collin's man's name but to him an eternal debt of gratitude. He went back to the closed factory, located the required part, disassembled a piece of Collins microwave scheduled to be shipped, removed the Klystron and arranged to meet the CATA 'emergency flight' at a Dallas airport. Once again, the spirit of Rod Wheeler came through.

Alas, we were not yet out of the woods. Kyle Moore's airplane headed south to Dallas, picked up the Klystron (packed lovingly and carefully in Styrofoam packing indicating its delicacy to shock or tension) and headed back north. The local airstrip was now dark, no lights and no tower attendant. Kyle landed in Tulsa, an hour away, where he was met by an emergency-ground-bridge. It was past midnight before the carefully packed Klystron arrived in the sweltering hut where five individuals led by Steve Birkill were laboriously checking out every operating segment of the transmitter stage by stage.

Typical of the check out routine. Now separated from the antenna portion (which stood ready for the transmitter to turn on), Tony Bickel, an accomplished transmitter engineer in his own 'amateur' or ham radio right, was working his way stage by stage through the rear deck of the six foot racks.

"Look at this," said he, lifting a fully formed bird nest from the klystron 'cavity' where the in-transit tube would eventually mount. "I wonder if they bothered to look inside before deciding the klystron was bad!" In fact, it would later turn out the special tube was defective because a bird had somehow taken up refuge there, built a nest, and short-circuited the klystron's power wires.

Murphy ("whatever can go wrong ... ") was tenuously alive and well.

It was 5:50AM July 18th and a knock on my lodge door. Ralph Haimowitz, not a pretty sight by daylight, certainly much worse for wear after 48 straight hours without closing his eyes, was standing there with a grin on his face.

"I am here to report that we have acquisition. Your Goddamned uplink is working!" And he turned and disappeared down the bulb-lit hallway. He placed great emphasis on the word "your" and I did not ponder why.

Now the fat was really in the fire. A day late, we had to prove we were also not a dollar short. From Fountainhead Lodge near Eufaula, Oklahoma our resurrected 6 gigahertz transmitter was transmitting on satellite channel 10 to RCA's F1 satellite 22,300 miles above the equator. There the signal was 'turned around' inside the satellite and returned to earth. But we only had permission for (and all of our advance notices had said) transponder/channel 24. The Canadian origin transmitter arrived with 24 separate channels inscribed on the front panel behind a rotating switch - one position for each of the 24 satellite channels. One switch position socket was empty. Yes, it was number 24! Even in the final minutes Murphy was holding on tight.

Enter RCA's man Don Pidgeon, on the jury-rigged telephone to his control center at Vernon Valley. They agreed on the spot to receive us on channel 10 (normally used only late in the day by Showtime [Movies] for the western USA area), 'turn us around' at Vernon Valley and resend our signal back out on channel/transponder 24 - where we were supposed to be. Had they not agreed to do that, doubtless most of our intended 'audience' would have simply gone away thinking we had failed to get on the air if we were missing from the announced channel/transponder 24.

I wrote in CATJ for August:

"We cannot say enough good things about the co-operation, the bending of rules and corporate policy or the super assistance that the CCOS uplink telecast experienced from RCA. They came through when the chips were down, and their Don Pidgeon has got to be the greatest practical satellite uplink engineer walking around loose in the world today."

Of all of the many photographs that illustrated our CATJ report, one stands out head and shoulders above all others. It was 4AM on the 18th and shows a dog-tired Tony Bickel walking with great personal effort into the transmitter 'shack' carrying a stack of servicing manuals that accompanied the Klystron loaner tube. On the ground at his feet, barely able to hold his head up, RCA's Don Pidgeon attempting to

light a cigarette with a malfunctioning Zippo lighter. Pidgeon told me after seeing the photo in print, "I was so exhausted that I could not find the flint wheel on the Zippo and when I finally did locate it, the flame burned me because I was trying to light my index finger rather than the cigarette!"

To a man, everyone carried the Rod Wheeler spirit. Nothing even remotely like it would ever happen again in the cable or satellite field.

Camel's nose under the tent flap. At this juncture, someplace between 450 and 500 FCC licensed satellite receive terminals were operating or close to being functional. In truth, now it is easy to say, the number of privately owned, non-cable unlicensed terminals (in mid-1978) might have totalled 100-150. Nation-wide. Of course with the October TV Guide article about to change history, I was not at the time admitting to such a small number.

And there were fewer than 12 satellite TV programers, most of whom (such as HBO) were operating 12 or fewer hours per day. Ted Turner's WTCG nee WTBS was 24 hours, and he planned in December to modify his WTBS programming fed to satellite to eliminate Atlanta area commercials in favor first of public service announcements, later to insert national ads. WTCG was now being carried by cable as far away as Hawaii. And Hawaiian cable viewers were creating a considerable ruckus with local car dealers who saw advertisements from Atlanta offering identical vehicles to their own for as much as $5,000 less money. Turner's answer was to eliminate the Atlanta area WTCG advertisements. But before he could substitute special paid-for advertising in his WTCG/WTBS satellite feed, an FCC change in rules would be required.

Steve Birkill arrived in Oklahoma several days prior to CCOS, ostensibly because he had 'volunteered' to assist with making the uplink terminal function. In fact, he came early to sit down at my rural home between Guthrie and Oklahoma City with Steve Birkill and Rod Wheeler. Birkill had pioneered a receiver circuit later to be called 'PLL' for phase-lock loop. Birkill's novel circuit did something no other satellite receiver could do - it lowered the amount of signal required to produce a watchable picture. What lower signal level meant was 'a smaller antenna'. The seeds of 'home' satellite dishes were being watered.

In my basement Birkill's PLL was married to a prototype receiver developed by Steve Richey on behalf of Canada's Rod Wheeler. The results were very promising, if not quite revolutionary. With PLL, we found the 'threshold' for suitable reception was approximately 50% improved over the best commercial receiver (a Microdyne) available.

What this meant in performance was that where a ten foot dish was the smallest practical for a wide segment of America, now an 8 foot would be suitable. With the monthly improvement in LNA (low noise amplifiers), 8 foot would become 6 foot shortly.

Prior to CCOS, Richey and Birkill worked through a complete night modifying a receiver which had been built as a prototype for Wheeler. With CCOS coming up days later, logic suggested that Wheeler would take the receiver with him to Fountainhead Lodge. To support the concept of 'small dishes' we would haul our previously demonstrated ten foot (Prodelin brand) dish to CCOS as a source for tests. It was inevitable that this one-only, prototype receiver would be amongst those tested.

Which created a dilemma which rapidly got away from me. Steve Richey had in his pocket a Wheeler order for a quantity of receivers. And now he had a Birkill modification that made it better; much better. Richey Development Company had a table top display at CCOS (along with 61 other firms) and unbeknownst to me was Richey's daring decision to add the receiver to his display.

Cable industry reaction was akin what you might expect had a Middle Eastern cleric walked into an office of American Airlines carrying a sign announcing, 'Shoe Bombs for sale', in 2002. Two hours after the exhibit hall first opened, I stumbled into Richey while making an urgent stop at a lodge men's room. He was not using the facility; he was hiding. Or trying to hide. Under his arm, the one-only receiver created for Rod Wheeler.

"I've run into a hornet's nest. One guy actually threatened me and backed up his threat by cancelling a pending order for cable amplifiers."

I missed the point. "Why - what is this all about?" I asked.

"I made a mistake by pointing out before a group this receiver had unusual sensitivity and coming out at less than $3,000, it was under half the price of the commercial cable receivers. And I used the 'h' word by describing its possible use for 'home' TVRO systems. That was when he threatened me."

Word about the Richey receiver spread like wildfire amongst attendees. And Richey saw his very thin world (he was barely surviving at the time and totally dependent upon small cable operators for the limited business he was doing) evaporating. In sheer panic, he had grabbed the world's first and only 'home' TVRO receiver and headed to a quiet spot - the men's room - to think it out. Which is where I encountered him.

The quandary was self-imposed. First of all, Rod Wheeler 'owned'

the rights to the receiver design although it would have significant Steve Birkill input when finally released. And Wheeler was more than capable of consuming Richey's very limited production ability for the indefinite future. But hope sprang eternal, Richey saw the mushrooming interest to be his primary 'bright spot at the end of a long tunnel' he had been traversing since Joe Driscoll's reshaped CADCO need for him folded.

Microwave Associate's Duke Brown cornered me with some less than pleasant language. His message was, "You are working for us (as a consultant on the proposed home dish industry) and you had to see some conflicts between what we are doing and the Richey receiver. Yet we had to come to CCOS to learn about this receiver. What gives here?"

Valid points for which I had no plausible explanation. Carrying too many 'secrets' around and not being able to share them openly was starting to be a pain in the neck (or head). I diverted Duke's complaints with the suggestion he sit down with a notepad and pen me his concerns about the Richey receiver for publication in the September CATJ. He wrote on Fountainhead stationary:

"I am concerned that cable operators will look at a $2,700 price tag twenty-four channel receiver with

switchable 6.2 and 6.8 MHz sub-carrier audio and other typically home-terminal features, and figure that type of receiver is good enough for their tuneable needs for cable systems. We all know that this new breed of home or private terminal gear is not capable of maintaining specs which the commercial gear is built to and that there are many shortcuts in that type of receiving equipment. I hope the CATV operator does not let the price get in the way of his good judgement."

Translation? Half the price (the competition was still over $5,000 per receiver) and twice the features did not, according to Duke, add up to a 'quality buy'. In fact, it did but when you are caught with your pants down, the best defense may well be to create an erection rather than reaching for a fig leaf.

CATJ had been alluding to 'private' (and now Duke properly called them 'home') terminals for several months. Far-sighted cable folks, of which there were a few, were adding two and two and getting four. 'If' (or perhaps 'when') the pricing on small dish systems became low enough, they could see the possibility that people who might otherwise become or remain cable subscribers would opt instead for a 'home dish system'. Indeed, the camel's nose was now well and truly 'inside the tent'.

Richey packed his one-only receiver away for the balance of CCOS

and declined to discuss it with anyone who showed even the slightest inclination to be or become hostile. What did happen quite outside of his 'tight lipped / no comment' defense was a 20 minute piece of 'filler programming material' we had taped at my home near Oklahoma City prior to the show. Birkill was there, along with Wheeler and Richey. We sat down at around 9 in the evening under Dana III's glaring lights in an alcove porch and the trio created a frank discussion of (1) 'the' receiver, and, (2) Birkill's special skills with receiver design. This tape was played via satellite to the entire continent two times during CCOS, to bridge between scheduled events that were sent out live. Unbeknownst to me, the several dozen - perhaps 100 - 'private' or 'home' dish enthusiasts were tuned-in and watching. Many of them (such as Bob Behar of Miami) would shortly become so inspired as to grow into major marketers of home dish systems.

To further drive home the 'home terminal' message, with full knowledge that TV Guide would change my world (as well as that for thousands of others) in but two months time, the August (1978) CATJ carried a pair of photographs which ultimately would have almost as much social impact as the mainstream magazine article coming.

Back in December of 1977, while attending a cable industry trade show in California, a ham radio buddy who also worked in the cable world cornered me with an interesting story. It seemed that a somewhat eccentric Stanford Professor of Electrical Engineering named Henry Taylor Howard, living as a semi-recluse in the former gold mining town of San Andreas, California, had his own private dish system. I made contact with Howard, and he sent me a photograph of his 4.5m antenna which was indeed receiving satellite signals of a sort along with a brief note of how well it worked (and did not work). Howard would in 1979 become a prominent 'pioneer' in the soon to emerge home dish industry but in 1978 he was still happily commuting in his single engine plane between Stanford and San Andreas, recovering from some family problems, and attempting to make his ex-US Navy ship-borne radar antenna perform the desired function. The published photo of his then-antenna in CATJ for August 1978 would years later become a bone of minor contention.

The second photo showed Rod Wheeler bridging generation gaps in his home near Whitehorse, Yukon. On the left, a 1850 era log cabin (his home) and on the right, the 4.5 meter dish he had fabricated with the same tenacity he brought to CCOS. Wheeler would also become a powerful force in the home dish industry as the founder of Norsat, a firm still alive and well more than 25 years later.

Wheeler's battle with the Canadian authorities, including the RCMP, was now almost history. Canada's Government in 1978 had the largest 'fleet' of domestic or non-Intelsat satellites in the world; three. But it also had several layers of bureaucracy between the physical capabilities of the satellites and the folks on the ground who might benefit from their operation. One channel of CBC television had begun operating a few hours daily, ostensibly as a 'feed' to terminals such as those designed by Wheeler; first time television for remote logging, mining camps and settlements in northern Canada. But Canada's bureaucracy had stiff rules that discouraged anyone using the service except under their ill-thought-out requirements. First, only the government could own a satellite receiving terminal. Under a tiny footnote, it was possible for someone like Wheeler to actually build a terminal but before it could be 'turned on' (operated) the 'deed' for the system had to be given to the government for the princely sum of one Canadian dollar.

Then, to make life more difficult, the 'gift' to government terminal had to be supported by an annual fee paid to government of C$13,000; maintenance, you know, of the terminal. This, and much more, incensed Wheeler.

His own terminal, by now infamous across Canada because of press reports, became the subject of controversy. Government said, "Give it to us!" and Wheeler responded, "Up your dish!" Finally a compromise - he would be 'allowed' to keep the system he built through a licensing subterfuge known as 'Experimental, Developmental' terminal. That ended the first phase of the impasse but now a second one. Wheeler was not particularly interested in watching CBC's pilot northern television service. He was far more interested, privately and ultimately commercially, in Atlanta's WTCG, HBO and others. But they were coming into Canada on an American, not Canadian satellite and his negotiated 'developmental license' did not allow reception from any foreign satellite. Again, Wheeler stuck to his guns, and in Whitehorse, he selected a 5 day holiday period early in July to connect his terminal to the 2,500 subscriber Whitehorse cable TV system. The local cable system (and the local government operated CBC low power TV station) existed primarily by using week old taped programming sourced in southern Canada (from US and Canadian commercial stations). For the holiday period, the local RCMPs could not get instruction about dealing with this development from the southern bureaucrats and for 72 hours Whitehorse viewers were suddenly connected to real time American television (WTCG). When the southern bureaucrats returned to their work stations on July 5, the order was issued to shut down the

connection.

Wheeler was expecting all of this to happen and he was ready. By some counts, more than 8,000 letters, telegrams and telephone calls bombarded the bureaucrats normal tranquil offices. But they stuck to their ruling, and Wheeler felt he had lost a battle but like Bunker Hill in 1776, this was but the first shot to be fired across the bureaucrat's bow.

This and more added up to rapidly building pressure in Canada and the United States. Wheeler was busy creating new one channel satellite receive - rebroadcast systems in other Yukon towns and this time he was selecting communities where the CBC was not previously available and there was no cable. It would be 'first time' television for communities as small as 50 people and his message was simple.

"Don't let them (the RCMP acting under bureaucratic instruction) shut it down until they can provide a replacement equivalent service to you!" It was Pickle Lake (Ontario) in advance of there being a Pickle Lake and everyone in each community pledged to defend the terminal with axe handles and anything else that would convince visiting RCMP they were serious about their TV.

Meanwhile, in the USA, the religious folks were even more 'serious' about their TV. And the hucksters began to crawl out from beneath their pulpits. The two 'cable-exclusive' programmers PTL and CBN were doing well (CBN was the second most frequently listed 'target source' cited in cable system FCC applications) and KTBN, the Fontana (California) religious broadcaster was off on its own tactical foray. KTBN recognised that if cable systems carried their service, there was an 'FCC penalty'. KTBN, like WTCG, was a broadcast TV station and rules limited the number of such 'broadcast' services that could be carried without the cable system incurring exorbitant copyright fees. Almost no cable system was willing to trade the 'general entertainment/sports' fare of a WTCG service for the full-time revival religious fervor of KTBN. It simply made no business sense.

So KTBN planned to utilize their satellite transponder to link or feed their programming to other, affiliated stations. A recent change in FCC rules allowed this to happen, lumping satellite relay into a technical category called 'FM Microwave'. But not everyone in the religious community thought KTBN's 'brand' of religion was the best one for their community.

Enter a group based in California known as the Full Gospel's Business Men's Fellowship International (FGBMFI, or, simply Full Gospel). Cattle rancher Demos Shakarian created the weekly meeting

group (sort of a Rotary for right-wing religious folks) in 1953 and by 1978, it boasted 600,000 members world-wide. In early July, Full Gospel held their 25th annual international meeting and 15,000 folks turned out to Anaheim's Convention Center. Right there, center stage as you went into the hall, was a 6 meter (USTC brand) satellite terminal and along side, a Scientific Atlanta 4.5 meter dish.

My good friend Stormy Weathers from USTC had urged me to attend and so I cut two days out of my pre-CCOS schedule and we went together. All I had to do was listen and I doubt anyone noticed me, recognised me, and most certainly did not know a blabbermouth journalist was in the audience.

Shakarian caught my attention with his grand opening remarks:

"We are in our last days on earth and now due in large part to the sudden development and use of a whole new technology, we have at our disposal the tools to create one last, great revival."

Stormy echoed 'Amen' and I slid my hand into a coat pocket to confirm my Radio Shack cassette recorder was humming away.

Shakarian continued with his prophesy that "within four years" some cataclysmic event was going to overtake mankind on earth. He skilfully wove this message of urgency into a game plan to utilize satellite television delivery to bind together "as many Christians as possible" into "one wholesome family prepared to meet their fate." I recall squirming in my seat, checking to see how many people I would have to say, "excuse me!" to, when I decided my choices including throwing up in the crowd or vacating the auditorium. Stormy was issuing "Amen" on cue along with the other 14,999 folks and Shakarian had their rapt attention.

Now, I would later work out Full Gospel had 10,000 chapter offices world-wide, or an average of 60 members per chapter. Stormy had alerted me in advance that a "satellite TV distribution plan" was to be announced and that had been the bait that got me to accompany him to Anaheim during a period when the last thing I needed to do was be absent from CATA and CATJ's Oklahoma City office (CCOS 78 was less than 10 days away).

On instructions from Shakarian, 15,000 people opened their meeting notebooks and turned to a specially marked segment containing a prepared booklet which described how each membership chapter would have the 'opportunity' to raise $60,000 which in turn would acquire for them a satellite receiving terminal and a 100 watt UHF (TV channel) translator; installed. Stormy, a manufacturer of 6 meter satellite reception dishes and a would be manufacturer of satel-

lite receivers seemed to have an inside track on all of this as a prominent member and self-described 'satellite professional'.

At the end of this particular session of Full Gospel a table in the foyer was ready and waiting to take member's signatures on quite unwieldy contracts sitting by the box full to be signed. Two hours later the announcement -"the first 335 chapters have signed contracts for these satellite Gospel systems."

CATJ for June had reported $37,942 as the 'average cost' of a cable TV terminal during the month of May. But in fairness, the cable terminals were reception only - the cable system would include 'the transmitter' - whereas Full Gospel was including a 100 watt UHF transmitter as well. On the surface, $60,000 did not seem out of line.

I searched in vain for some signs of a satellite industry supplier personnel in the crowds surrounding Stormy's 6 meter or Scientific Atlanta's 4.5 meter dishes. None to be seen. 'Curious', thought I. Here are 335 systems all ready to spend $60,000 each - more than $20 million, and not a single salesman around! And Shakarian was openly predicting, "1,200 terminals within a year."

In a second session I listened to their plan for using the terminals. They had some pretty impressive 'experts' on the stage; George Metcalf, a 15 year veteran of NASA who was then-responsible for NASA's globe circling satellite communications network; Patrick Fisher, a highly skilled satellite engineer deeply involved in the LANDSAT or early terrain mapping network, and, some folks who claimed to be affiliated with such diverse organizations as GE and RCA. A layman, sitting in the audience, pumped up by Shakarian's 'promise' that within four years they would all be toast, had to see what was being outlined as some last, final opportunity to "get right with God." However one spellbound G O D.

Midway through the 'expert panel' it occurred to me there were some very significant legal problems in all of this. I thought about doing something very foolish - standing during a question and answer time and raising my questions. Then I remembered my promise to Stormy to 'be good, be quiet, be invisible' and decided that was better than being stoned by 15,000 people who might see me as not only a non-invited member of the press but a party - pooper for destroying their rhetorical highs.

Problem one. Shakarian's prepared booklet said, "while no final decision has been made, Full Gospel believes it will be taking the programming of PTL for distribution." Here were oil and water, not mixing.

PTL was not a broadcast TV service. The satellite feed featuring Jim Bakker was only for cable and FCC rules prohibited a licensed TV station (translator) rebroadcasting programming originating from any source other than a TV station.

This was the KTBN problem in reverse. KTBNcould be carried by satellite to other TV stations (translators) with no changes in the rules. But KTBN incurred copyright problems for cable systems. PTL had no copyright legacy but they could not be used directly for TV broadcast.

Problem two: KTBN. For five days KTBN provided live and tape-delayed satellite coverage of many hours of Full Gospel meetings including the headliner appearance of Oral Roberts. Pointedly missing, any Full Gospel sessions dealing with their 'Gospel Satellite' project. During the course of the Anaheim meeting coverage, KTBN's Paul Crouch brought into his live studio Washington attorney Jim Gammon and they talked 'around' but never specifically about the Full Gospel project. Then with some fanfare (minus only a drum roll from the band), Crouch and Gammon 'signed off' on four 'Trinity baby sister station' applications which Gammon would hand carry to the FCC; the first four of ultimately thousands. Following the precise rules of the Commission, Trinity was making formal application for UHF translators to relay the KTBN signal carried on satellite to homes in Seattle, Oklahoma City, Denver and Houston.

The puzzle here was this. Crouch had the necessary TV broadcast station to 'feed' translators, and seemingly the smarts to do it within the existing law. Full Gospel was not belligerent towards Trinity, but they were ignoring them - as if KTBN did not exist. And Full Gospel, with or without legal advice, was openly promising to deliver PTL to their 335 / 1,200 chapter affiliates; something the law clearly did not support.

Had I stood up to ask my questions, they would have centered around this conflict. And I probably would have been 'stoned' by the crowd for suggesting that Shakarian could not deliver what he was promising.

Problem three: Cost. One of my oldest friends from the days at DXing and TV Horizons (1961) was Byron St Clair, or 'Doc' as he was more commonly known. I ultimately spotted him at Anaheim and he told me that his UHF translator manufacturing company EMCEE hoped to do business with this group. We talked at length about my fears for use of PTL, he said "if certain problems are worked out" they would switch to KTBN and this would be a non-problem. Then we talked about the pricing on his 100 watt UHF translators, complete with a tower to hold the transmitting antenna, and the antenna and parts.

Like so many friends in the industry, we had shared many days together at various venues (including the 1961 Western Translator Conference in Salt Lake City) and he had been my overnight house guest on more than one occasion. So when we talked, it was openly, without any fear on his part that 'blabbermouth Cooper' would ever write something that would hurt his EMCEE. He also knew from nearly 20 years of being associated with me that, "I gave as good as I took," meaning that if anybody in the world knew the exact nature of what the latest insider information was, it was I.

He confided, "The pricing is not right." I asked, "How much not right?"

"About $15,000 and it concerns me."

Doc was a mathematician originally (and thus the Doctor's degree) and he carried around a tiny notebook filled with equations that only made sense to his analytical mind. He once challenged me to work out even what the designators stood for (C=v/f x pg/jj). I failed.

"Add up the parts. Here's my list price schedule and you know the bulk pricing on satellite terminals better than anyone else in the world at this point in time. See what you get."

I did. It came to $42,000 less only freight to Devil's Knob, ND or wherever the system might go.

"So what's $60,000?" I asked.

He smiled. "Silly boy. Profit for Full Gospel although it is probably closer to $15,000 than $18,000."

An entirely new element was entering the equation; "p" for Full Gospel. Make that "P."

OK - so Shakarian was not altogether wrapped up in 'one great last revival'. He was also looking at slicing Doc's $15,000 per terminal off of the top. The nearly fifty page contracts the first 335 chapters signed clearly read that the full sum was going to Full Gospel, under the guise they would 'act as a buying co-operative' for the systems from 'established vendors'. Shakarian might be expecting an end to the earth in four years time, but he was planning to approach termination day according to the age-old tenant of venture capitalism: "He who dies with the most toys is the winner."

The PTL versus KTBN debate. PTL stood for People That Love. Jim and Tammy Bakker began their short tenure as religious celebrities with Paul Crouch as a major contributor to their packaged service. The name of Paul's program was "Praise The Lord." Crouch would make some revealing, probably heartfelt, statement or admission about his own 'weaknesses' and then raise his hands and shout "Praise The Lord."

In religious families, "Praise The Lord" was as well known as "And ... here's Johnny!" to late night secular NBC viewers. But Crouch and Bakker parted and Crouch took his "Praise The Lord" program name with him west to establish KTBN. That left Bakker in a quandary. He felt "PTL" originated within his service, that he should not simply give it up. So when the cable network was put into operation, they called the service "PTL" which now supposedly stood for 'People That Love'. Bakker, before his cable start-up, was also distributing 'The PTL Club' through approximately 150 terrestrial TV stations. The PTL Club purchased time at bargain rates in off-hour periods on less than major TV stations and had an audience reach of millions. PTL in 1978 was spending in excess of $3,000,000 per month to create their terrestrial and satellite services. All of the funds to 'crack this nut' had to come from donations; people who felt sufficiently motivated by Jim, Tammy and the crew to agree to send in money and keep the service on the air.

In 1978, and for many years thereafter until Bakker was ultimately arrested and found guilty of various tax evasion and management misjudgements, Bakker was habitually, "a day late and a dollar short." In fact, he had been scheduled to appear at the Full Gospel conclave in Anaheim but a financial crisis forced him to stay in his Charlotte headquarters. Then as a backup he was going to appear on a satellite feed to address the 15,000 attendees but even that failed because of some never explained 'technical' problem.

Thus Bakker and Crouch were at best compatriots but seldom if ever 'singing from the same song book'. Shakarian was the odd man out, promising to help Bakker out of his financial difficulties by expanding his direct-reach universe with a thousand or more new UHF low power (translator) TV stations. Shakarian and Bakker somehow believed that if they were 'God's messengers' that any (FCC) rules or regulations that stood in their way would 'magically melt'. Over the last four months of 1978, 'messengers' from Full Gospel would frequently visit the FCC, and the offices of Senators and Congressmen to 'preach' their gospel of 'satellite deliverance'.

I revealed all of this and much more in the September issue of CATJ. Demos' son Steve Shakarian found my report 'insulting' and promptly made Stormy Weathers a scapegoat. A new $90,000 per year 'administrator' for the Gospel Satellite project equally promptly threw out Stormy's 'bid' for complete terminals ($39,000 each although the Chapter price continued to be $21,000 more) and, to replace Stormy's 'winning bid', called for a new round of bidding.

Salesmen. It was an eye opener to me that although KTBN had

provided live or tape delayed coverage of the Full Gospel meeting, that S-A and USTC had dishes set up there, not one single satellite terminal salesman had even a hint of what was happening until they opened and read with rapt fascination CATJ's 6 page report. Imagine that - up to 1,200 new satellite terminals and not one peddler had called on Full Gospel to that point.

Of course, clutching September's CATJ in their grubby hands, dozens promptly descended on the offices of Full Gospel. One group was especially irate about the $60,000. Pete Warren and Alex Blomerth were two guys from El Paso with a religious mission statement of their own creation. I was indebted to these two guys, operating as 'International Christian Television' (ICT), because they had volunteered to haul their 40 foot production van to CCOS 78 to serve as our 'network control center on wheels' during the infamous 20 hour uplink telecast. ICT held an FCC license to telecast on UHF channel 14 in El Paso, and slowly they were putting together the jigsaw puzzle pieces that would allow them to become operational with a combination secular and religious 24 hour per day television format. They had plans to take their channel live to satellite as well, hoping that by mixing religion with Popeye and Leave it to Beaver they could out-Pat Mr. Robertson of CBN.

Pete and Alex were in Anaheim and we lost no time comparing notes. I had Doc St Clair's figures on a note pad and when I showed them to Alex he promptly produced his own, almost identical, set of calculations.

Pete Warren: "I showed these numbers to Sharkarian's son and he told me, $15,000 is an engineering and administrative cost for turning each application into a licensed translator station." He was only warming up.

"If somebody really wanted to avoid spending money unnecessarily, they would find a transmitter location with existing (unused) tower space available and existing indoor room for a new 100 watt transmitter. Where does it say you have to buy land, build a building, erect a tower to become a TV station operator? Look here," directing me to a new page on his sketch pad. "Using that type of approach, I could put these in all day long for $22,000 with a 100 watt translator and a 4.57 meter receiving dish."

Putting their mouth where their feelings were, when I last saw Blomerth and Warren in Anaheim they were preparing to run off 15,000 letters to distribute to the attendees advising them that $60,000 was "too much money" for the proposed stations.

G O D often works in mysterious ways. For whatever reason, while Full Gospel ultimately failed in their grand scheme, Paul Crouch at Trinity prevailed. But through the balance of 1978 and well into 1979, the FCC, Congress and the satellite industry had no way of forecasting how and where all of this would end up.

In my backyard

The launch of a new industry. The October 21st edition of the USA *TV Guide* article hit the streets. Simultaneously, a nearly identical story appeared in the Canadian edition which was, with my assistance, rewritten to feature Rod Wheeler and his battle against the Canadian authorities. In a double-barrelled shot, we had launched a new industry across North America.

But there was some trouble in the Cooper household. It went back to that period when I was 'between' jobs, having left CADCO at Joe Driscoll's insistence and before CATA and CATJ were financially able to maintain me in my Oklahoma lifestyle. My solution had been to write a CB (Citizens Band) radio booklet with insider information provided by CATA attorney Rick Brown and EF Johnson head man Dick Horner. The $100,000 that booklet brought into our bank account had bridged the gap. For whatever reason, perhaps simply because we needed all of that money to get us across the no-income stream, I had neglected to report it properly on the relevant U.S. tax form. And it bothered me. Nobody knew of this 'oversight' but me. Not wife Susan, not anyone.

With the launch of a home satellite industry, with me already planning to leave CATA and CATJ having accomplished most of what I had intended, some quick calculations suggested to me I might have a $30,000 problem with the IRS. On a trip to Washington for CATA I broached the subject to CATA's lead attorney Rick Brown. But I began by going in a back door.

TV Guide was out and Brown had read it. He was also bright enough to be putting 2 and 2 together and he thought he saw me doing

precisely what I was doing; creating a home satellite industry from scratch. We talked about that and I brought him up to speed after making it plain that he was talking to me as a private client, not as an employee of CATA or TPI (Television Publications, Inc. - owned by Bunk Dodson, Kyle Moore and myself).

It turned out, over a lengthy discussion that began in mid-afternoon and continued through dinner and most of the evening, that he also was beginning to feel as if CATA was over the hurdles that interested him. Partner Steve Effros was handling the majority of the CATA work, and Rick was looking for new worlds to conquer. The first tips of the cellular telephone iceberg were poking above the surface of the regulatory ocean and that attracted him.

He wanted to know everything I knew about the prospects for 'home TVRO'. At the end of the evening, he knew all about my 'problem' and I had worked out his dissatisfaction with his own life (a family he had grown alienated from, a 'crush' he carried for a female law clerk in his office, and some serious disagreements with a law partner). Rick was at a cross-roads in his life and some of what I was saying and planning obviously presented him with new options.

The 'problem'. The IRS was owed money. They didn't know that, only Rick and I did. Using client-attorney privilege, his office could make contact with the feds and see what my options might be without identifying me specifically. One major hurdle - where was I going to raise $30,000 (my estimate, which turned out to be low because of 'penalties')? I had a suggestion.

I believed I might be 6 to 9 months away from no longer being able to function as CATA's brain trust and CATJ's managing editor. The reaction to the TV Guide piece was already snowballing - in the first week after the publication, more than 10,000 pieces of mail came through my office door in huge mail sacks. And the day I left Washington, heading back to Oklahoma City to meet a CBS film crew from Walter Cronkite's 'CBS Evening News'; they were planning an extensive piece on my 'home satellite terminal' as a follow-up to the TV Guide disclosures.

I had already begun writing a $7.50 sale price booklet which would become a short-term best seller answering the standard questions which TV Guide readers were asking. It was going to be the CB booklet all over again. Moreover, my old home Radio Electronics was after me to do a 'how to build your own earth terminal' series of reports which ultimately would run through the spring and early summer of 1979. All of this suggested cash in hand was not going to be a problem

anytime soon. Still, I needed Rick's help in disengaging from Bunk Dodson and Kyle Moore at CATJ.

CATA I could leave by packing up the contents of my cluttered office. CATJ was going to be more complex as three of us held a third of the stock each. I suggested to Rick that he act as my 'agent' and begin negotiations with Kyle and Bunk to 'buy me out'. That money, after deducting Rick's fees, would go to the IRS to wipe my slate clean.

The timing was critical. What I did not share with him at that time was my plan to be totally gone from CATA before CCOS 79 (topping the CCOS 78 uplink was almost impossible and I didn't even want to waste valuable time thinking about it), and more importantly, a scheduling of the first SPTS (Satellite Private Terminal Seminar) for Oklahoma City sometime in July or August. But to get 'there' from late October 1978 was going to require that I still have the resources of CATA and CATJ through at least late May or June. I was not finished with my efforts to get the FCC to totally abandon satellite terminal (TVRO) licensing and over the next 6 or so issues of CATJ had a plan to provoke just that action at the Commission.

Rick extracted from me a promise to 'make me a part of this home TVRO business', which was my plan anyhow. As an attorney, Richard L. Brown was often initially persuaded by the complexity and uniqueness of something rather than the dollars to be earned. The whole concept was fascinating; that one day - perhaps soon - people could be sitting in their homes watching a dozen or two or three channels of satellite TV with terminal systems designed and sold by a network of companies that did not even exist - on paper, at that time. I so promised and he stayed with me through the early developmental days of home 'TVRO' and I with him until we had a falling out over what I misread as his greed. But we are once again getting ahead of the story.

It took six months for the IRS and I, through Brown's office, to reach agreement. The feds apparently did not have a cast-in-stone policy to deal with people who voluntarily 'turned themselves in' without being caught out and at first they seemed not to know what to do with me. Eventually a couple of field investigators came to my home, we retired to the downstairs laboratory and poured through our austere records. Fortunately the CB booklet sales had all gone into a single bank account and the accounts versus our documented expenses allowed someone with appropriate skills to calculate our profit and from that the taxes we owed. By the time the IRS folks came to see me the satellite TV booklets were passing the 5,000 sold mark as well and I thought it might be a good concept to disclose this as

something currently underway. One lady tax person seemed somewhat overwhelmed by it all and kept drifting off with her eyes on the multiple TV monitors showing satellite TV. Finally, after being distracted by Angie Dickinson's baring it all in a movie showing on one of the pay-TV channels, she asked me to turn off the screens so she could concentrate on her job. I gifted her with copies of several booklets and publications when she left and often wondered if she became an early buyer of a home dish system.

But before we got to the point where Rick flew to Oklahoma and negotiated the final contract agreement that would free me from CATA and TPI, there were several months of intense activity.

I could never be sure when and why it happened, but someplace around CCOS 78 and Richey's premature and ill-advised showing of the first home-design TVRO receiver, Microwave Associates intense interest in being a primary supplier of home dish systems waned. My relationship with Duke Brown was never stronger and I was now staying with him in his home rather than 'bunking in' with Chairman of the Board Dana Atchley Jr. Perhaps in retrospect I should have read something into that. The original object that created the relationship with M-A Com, the Gunnplexer low cost, low power microwave transmitter, was going gang busters. I had even worked one into the CCOS 78 uplink system using a Gunnplexer cable version to connect the ITC production bus to the uplink transmitter across the 1/3rd mile of lawn in front of Fountainhead Lodge. Moreover, I had submitted to Popular Electronics Editorial Director Art Salsberg a lengthy (50 page) manuscript, with suitable drawings and photographs, the basis for a trio of consecutive monthly feature articles that would describe how anyone who wished could build and operate their own private microwave link. It would appear in the spring of 1979. I had also encouraged a New York state ham, Bob Richardson, who was a Gunnplexer buff, to create a 'Cookbook' of do-it-yourself Gunnplexer circuits. And I brought Richardson to CCOS 78, gave him a forum to explain his technology (all of which was in direct support of the M-A Com hardware - meaning more sales for M-A Com) and put him on coast-to-coast satellite TV so those not attending could benefit from his specialized knowledge. Six years later in life Richardson would figure prominently in a less favorable to MA/Com project involving descrambling of satellite signals; but that story also can wait.

When a CBS film crew arrived late in the afternoon to go with me to my rural home and explore my yard filled with satellite dishes, it was apparent 'big time' had arrived. The reporter, Eric Engberg, was well

known to anyone who watched CBS and the crew in tow had more equipment and skills than we had total at CCOS 78. Yes, it seemed like a bit of overkill to me, as well. There was no indication of what their slant might become (there always is one before they approach a subject) as we unravelled the story of my backyard satellite dish terminals.

They had no interest in showing my smaller dishes (6 and 10 foot), focusing instead on the 20 foot/6 meter monster. I should have seen that coming - if they made it seem too simple, too easy to duplicate, the ultimate air piece might be positive and even encouraging that others could do the same thing. On the other hand, with a 20 foot several ton monster piece of metal, the people watching who could afford one or find a spot in their yard to plant it became much smaller. So their 'slant' was to make it look complex, expensive, and not for the average American. Even a bit on the 'crazy technologist' side (Cronkite would introduce the piece on air by bringing in Eric Engberg, and, "the man who has created the ultimate television set").

And there was the privacy (or piracy) issue, until now seldom mentioned in a public forum. Nothing in this early era of satellite was encoded or 'scrambled'. If you owned the normal receiver and system, anything sent by satellite was open to view. In my TV Guide piece, I had noted how entertaining it was to watch the California based Johnny Carson show being sent east three or more hours ahead of the actual New York air time. In New York, the show would be taped 'and polish-edited' (made ready for actual redistribution with commercials and station breaks inserted). I wrote:

"The live version (of Johnny Carson) on satellite is sent without bleeps or commercials; during those numerous commercial breaks the cameras and mikes continue to run 'hot' on the satellite. Around our house we call this version 'R-Rated Carson'."

Keying off this sentence, Eric Engberg ended his report before handing it back to Walter in New York with:

"In the meantime, people with satellite dishes like those with crystal sets in radio's early days can tune-in on many transmissions not intended for home viewing. Such as this one, from Eric Engberg, CBS News, Denton County, Texas."

The video for this showed Engberg standing in front of a satellite dish, but displayed on a video monitor. As his sentence went on, it became apparent we were looking at a picture of a picture of a picture - his closing seconds as one might have seen them transmitted via satellite to a home or commercial dish system, 'intercepted' as it were while being sent to CBS News in New York. Thirteen months later,

December (1979) on Christmas eve NBC journalist Tom Snyder would devote nearly ten minutes to the subject of home satellite dishes and they too would close with the 'pirating of signals' issue.

It is difficult to maintain an even keel, to think you are 'just another guy' in the street after being exposed in 40 or 50 million American homes over 2 minutes and 48 seconds. Later somebody would coin the phrase, "15 seconds (minutes) of fame." Dead right.

If the fellow delivering mail thought he was over burdened with the mail sacks of queries coming to my office daily from the TV Guide report, he had a new reason to dislike me after the CBS piece played. Engberg had gone out of way to disguise where I was located, perhaps on purpose, but clever people took the CBS video report and reread the TV Guide article to pin me down to 'someplace in the vicinity of Oklahoma City'. So the letters arrived, by the thousands, addressed to variations of 'Bob Cooper, Satellite TV Guy, Oklahoma City'. Each letter was scanned and those that showed an interest in actually owning their own satellite dish (about half of the total) went into a pile. From that pile, a lady I hired addressed return envelopes into which was inserted a two sided letter sheet of paper that ended up with an order form offering a $7.50 'Home Satellite TV Booklet' which promised to disclose answers to every question they might ask. The first orders were back ten days before the first booklets were ready from the printer.

None of this helped me deal with the growing dissatisfaction in the cable TV camp. A significant amount of concern was growing even before I trotted out the major artillery aimed at convincing the FCC that licensing was a foolish waste of their time. In one year's time the minimum size dish required for what was technically an acceptable picture had dropped from 15 feet to 8 and the 6 foot version was just around the corner. Optimists in the cable world could believe even a 4 foot dish was going to be marketable to individual homes, pessimists worried the bottom would not be found until under 4 feet. Those who went the next step, forecasting 'Under $2,500 systems' - in as little as 2 years - were rightfully concerned how this might encroach on the growth of cable TV.

Of all of the TV programming channels available on satellite, approximately half of the now nearly two dozen were on satellite only because cable TV was carrying their programming. It was a small step from 'programming for cable' to 'programming *owned by* cable'; in this case, 'cable' was a 'collective we' noun. Cable operators believed the 'satellite explosion' was of their making, that nobody else (outside of cable) had any 'rights' accessing this programming.

What I needed to do, to justify the continued editorial exposure of 'small' terminals in CATJ, was to create some interface between the two ultimately competitive worlds. Steve Birkill was my answer.

Anyone who met him at CCOS 78, or saw him on television from there, quickly worked out his brilliance. In fact, M-A did their damndest to hire Steve while he was in the USA for CCOS and others were almost as anxious to have him on their team. Only Birkill was not a team player, although he worked for the BBC as a member of a transmitter maintenance group. Dana Atchley tried to get me to go to bat for Microwave Associates with Steve and I made several suggestions how they might attract his interest. But that failed, at least in 1978 (Birkill would return again).

Steve was a loaner, brilliant beyond anything America had to offer, and married to a lady who practiced Britain's unique brand of socialist medicine. She was a doctor and she, ultimately, would deflate whatever enthusiasm he might have for leaving the UK, even if ostensibly only for a year or so. M-A/Com's offer, once they figured out what he did and how he did it, was extremely attractive. His own lab, all of the latest 'toys' to play with, as many technicians as he wished (including none if that was his desire) and a salary that was five times as great as his BBC check. Dana tried to convince Steve his wife didn't 'have to work' with that salary increase, missing entirely the point that she was as serious about medicine and health care as Steve was about satellites. Steve, much like the Princeton Mathematician John Forbes Nash, Jr. made famous in the Academy Award winning movie "A Beautiful Mind," saw microwave circuits in their entirety, not as individual parts which, when plugged together, would perform a certain function. It is the equivalent of being 'clairvoyant' with complex electronic circuitry; a rare talent, indeed.

My answer to taking the 'heat' off of 'private terminals' in CATJ was to contract with Birkill to create a monthly column for the magazine: "Steve J. Birkill on Experimental Earth Terminals." Through this editorial space, Steve's very wise words of wisdom would be 'shared' evenly with anyone and everyone, including the many manufacturers who were busting their wave guide to hire him for themselves. It would soon become obvious that Steve's experimental work was going to add to the fund of knowledge concerning satellite terminal design in a very positive way that would drive US designed equipment down in price and up in quality. At the same time, 'experimental' became the new byword and as long as he was appearing in CATJ, manufacturers such as Hewlett Packard would shower Steve with the very latest compo-

nent parts hopeful that he would not only find them superior to others available but provide a positive boost in their sales curve as a result of CATJ publicity. They were not wrong and CATJ 'launched' (another space term) his column in the October issue. As a fringe benefit, CATJ picked up new advertisers solely on the strength of Birkill's column.

In retrospect, and purely speculation, the growing distance between Dana and I may have been related to the speed with which the 'private/home' terminal world was developing. As fast as M-A Com might be in developing new products and responding to market desires, this one was moving with the speed of a bullet train. M-A Com's tremendously capable Chief Research Engineer, Fred Collins, was more than capable of creating the definitive home style receiver the new industry would soon require but in fact his heart never quite seemed dedicated to the project. He liked making prototypes, did not really care for a finished product design and bemoaned to me with increasing regularity the monthly advances occurring. In his lab, a month was required to go from a new receiver concept to a working prototype. Birkill was doing it in a week without the benefit of Freddie's Lab. I'm not convinced Steve and Fred could have coexisted in a happy world at M-A Com and perhaps Dana was on top of these vibrations as well. In any event, when Birkill politely declined the generous M-A Com offer, Dana all but dropped home terminals from his vocabulary.

Big money puts on a big show

Troubles in satellite city. What began as a totally technology driven race to the satellite had by the end of 1978 turned into a dog-eat-dog bitter world fought as often as not before a judge. There were two reasons for this.

The FCC, in their infinite lack of wisdom, totally failed to recognize that their decisions (or lack of a prompt decision) was costing individual entrepreneurs millions of dollars. And creating uncertainties that would ultimately lead to court fights. Take Ed Taylor, for example.

Ed's Southern Satellite Systems (SSS) pioneered the concept of leasing satellite transponder space/time and placing one or more TV services on board. He began this concept while an employee of Western Union, finally managing after pitching to HBO (before they went on satellite) to get 'the biggest mouth in the south' (Ted Turner) to spring for the action. Many books have been written about Turner, his life style, his unconventional approach to business and I shall not repeat any Turner stories - at this time. Suffice to say, he was, while in front of me (behind me, beside me), quick to hear a business plan case, equally quick to hip-shoot a decision, and very competitive. Very.

Taylor made it possible for Turner's small time, locally unrated, and financially failing UHF station in Atlanta, Georgia (then WTCG) to become 'the nation's super station'. In my humble opinion, Taylor did all of the work, Turner was along for the ride wherever it was taking him. Taylor was a close friend for several years, Turner an enigma who drifted in and out of my life when it suited him.

The second reason for the switcheroo from technology to entre-

preneurs driven to court was RCA. This corporate body, the creation of a 1919 decision by the US Federal Government to 'pool' all of the important Government held radio-set manufacturing patents into a single entity, was initially (and briefly) satellite second fiddle to upstart Western Union. WU had once been a proud corporate body but it lost that status during the 30s and 40s and only by the grace of God and employees such as Ed Taylor briefly re-emerged as a power player during the early days of satellite. WU risked it all to raise the $100 million required to build a pair of early-day satellites, the first for any USA entity. But RCA had a better (if unconventional for the era) satellite design so that when RCA came along after WU, the winds of competition promptly switched to the folks from Camden (NJ).

WU satellites (Westar 1, 2) had to convince most of their early clients that satellite relay was dependable and less expensive than renting circuits from AT&T's terrestrial microwave and cable networks. Not many jumped into the pot in 1974 or 1975. By 1976, the temperature was rising just as RCA came on the scene with their satellites.

WU had half the capacity (called transponders by satellite ops) of RCA's innovative 24 channel design; a decided disadvantage. This meant they had about as much money as RCA invested, but only half as many seats on their 'satellite bus' to sell or rent. RCA's numerical superiority would prove key for the development of the cable TV satellite world. When HBO began its initial pioneering transmissions (September 30, 1976), it had been testing on a temporary basis using Western Union's W1 satellite. But HBO held a contract to become permanent user of RCA Satcom as soon as that satellite was available for customers. RCA's two original satellites (they built 3 simultaneously, launched two, holding the third in reserve) pioneered something known as 'polarization interleaving' which was the breakthrough technology that created for them 24 channels in the same spectrum space as Western Union's 12 channel satellites. RCA's technology would become the benchmark that most future satellites would adopt.

But RCA's satellites were far from perfect and as early as June 1978 cable operators began to notice abnormalities in performance. It happened that cable's early days utilized RCA's F2 satellite (as in flight # 2) whereas on June 1 for reasons known mostly to RCA, and probably valid, RCA elected to 'shift' all cable programmers to F1. It was an anxious day because nearly 500 cable TV dish antennas had to be moved from one speck in the sky to a new one. Shortly after F1 became cable's 'new home' the trouble reports surfaced. RCA dismissed the reports as 'minor adjustments' and assured the cable industry everything

was fine. Then came June 21 when all signals ceased for more than an hour.

Panic. The cable industry had wed itself to RCA for programming distribution and now the satellite RCA chose for this purpose appeared to be acting up. CATJ for June, July and onward kept up a running chronology of the 'trouble reports' and during CCOS 78 scheduled a 20 minute program featured RCA representative Larry Driscoll who kept assuring everyone his satellite was 'operating normally'. Unfortunately in the middle of this very telecast from CCOS 78, a power line failure and for 128 seconds there was nothing from CCOS on satellite. Bad timing!

Meanwhile RCA was playing it footloose and fancy free with the programmers and would-be programmers. Here were the rules.

RCA was FCC licensed to deal with a class of client known as 'common carrier'. To become a common carrier, the would-be programmer, if he or she was going to carry a TV service such as WTCG Atlanta or WGN Chicago, had to go to the FCC. RCA could deal with non-common carriers (that is, rent them space on the satellite) only if their programming was not going to include broadcast TV channels. HBO, Madison Square Garden Events and others were free to go to RCA and pay money for space on the satellite with only minimal FCC intervention. But Ed Taylor, carrying WTCG and United Video - promising to carry Chicago's WGN - first needed FCC common carrier status and approval.

Meanwhile at RCA, after moving cable's service to F1, they had to carefully apportion which of their 24 transponders (channels) would be available to whom. At one point, as early as mid-June 1978, they reported 'serious interest' from more than 30 would be programmers, some of whom would only be able to actually do their thing after the FCC considered their application for common carrier status. Thirty programmers did not 'fit' into 24 transponders very well; there obviously were going to be some (6 minimum) who would not get onto F1.

Ed Taylor's plan to bring San Francisco - Oakland independent station KTVU onto satellite as his second service was mired in FCC bureaucracy. By July 1978, the paperwork he had filed celebrated its first anniversary in an FCC 'in basket'. Ed was inflamed about this, rightfully so, because although he had been the pioneer with Ted Turner's WTCG, he saw his opportunity to actually expand to KTVU as well being lost when RCA ran out of available transponders. Late in August, RCA announced it was holding an 'auction' (September) and if those who

were talking about reserving a transponder did not act, and others did, some would be simply out of luck. It was first-come with-a-check, first serve time.

Taylor's frustration was monumental. He could not be a customer of RCA and use his transponder until the FCC acted. He already had a long list of cable systems signed up to carry the KTVU service and the funds to launch the new channel. RCA was telling him, "pay up and start sending us monthly checks now (around $80,000 per month at that time)," or, "quit blocking the way so somebody else can have that (almost last) transponder." They wanted him (and others) to 'pay' even if they were not legally able to use their transponder. This was a very capital intensive business - 'launching' a new cable service channel. He knew from his WTCG experience that KTVU would have to climb past 1.5 million homes taking the channel before he would break even. In WTCG's case, that took a year-plus. Which meant his pockets had to be deep enough to carry a loss approaching a million dollars before the income grew to equal the outgo.

Taylor was 'the hero' of the industry, frequently quoted in the trade press in a positive way, but so far his only return had been press clippings. Under intense pressure, he was 'awarded' two transponders by RCA on September 29. One was #13, the second #1.

But he had been promised (and he had RCA paperwork to prove his point) #18. It happened that 18 had several short-term technical advantages to either 1 or 13 which would translate to his having to borrow several extra hundred thousand dollars if he was denied 18, to launch KTVU.

Shortly after RCA announced Taylor could have #1 and #13, he took a phone call from me. "Transponder 13 is broken," said I. Dead silence on the other end. Then he spoke. "You are sure of this?" My answer - "As sure as I can be and it comes from someone who works at their Vernon Valley uplink."

Taylor immediately got on the phone to his RCA contact. The answer was classic RCA.

"Yes and no. Transponder 13 was having some problems in overheating but we cured that. Now it is just fine and it will be OK for your second (new) transponder."

After some two years of being dragged through the mud by RCA, Ed was in no mood to believe their promise. So, on October 20 Taylor hauled RCA into a federal court in Tulsa, Oklahoma, his home town, seeking a decision that would reprimand RCA for his treatment. The court was shortly bogged down in procedural matters as Taylor's 50

exhibits (including CATJ for May 1978, which helped support his case with facts RCA would find difficult to refute) and RCA's attorneys flooded the judge with motions. RCA was subtly urging the judge to 'pass' on the case, as they preferred having it heard in Washington (DC). At the end of the scheduled court day, the matter was set over until November 2nd - a date RCA immediately objected to, resulting in a new date near Thanksgiving. It was not going well for Taylor, who amongst other relief sought $1.4 million in damages from RCA should the court be unable to force the satellite firm to live up to the agreements documented in the RCA correspondence Taylor brought into court.

It would get worse, for Taylor, quickly.

October 30th. A new telephone call to Taylor from RCA.

"Transponder 13 has failed. It ran properly for four or five hours in a test and then began to get hot. We have now turned it off; permanently."

RCA giveth and RCA taketh away.

But they gave him a new option.

"If you will drop the lawsuit against RCA, we will 'try' to clear transponder 21 for you." RCA was playing a 'mind-game' with Ed Taylor. Apparently they were beginning to consider the downside of Taylor's lawsuit as his status in the cable industry was near the top of the pile and almost everyone was rooting for him to win in court. Even if he lost, RCA's public relations problem with cable would not go away. Their problems might become much worse.

Transponder 21 had a special class all of its own on the F1 satellite. Here's why. RCA expected that over time (a year, five years, who knew exactly how long) one or more transponders would fail. Not the full satellite mind you, but one of the channels. To protect themselves, and their customers, they always held one or two transponders 'out of the pool' as an emergency backup. Say transponder 24 failed with HBO on board - within minutes a new transponder would come alive with HBO and after some anxious hours at cable systems nation-wide, HBO would be restored. Such transponders were called 'pre-emptible' which described 21. RCA was offering a pre-emptible spot for the broken 13, but only if he agreed to drop his lawsuit.

Taylor was indignant.

"I'd be a fool to take 21 on a pre-emptible basis. You cannot invest millions of dollars into a new service project, lose money for one or two years, and just reach break even while living in fear that RCA is going to call you one day and advise, 'we are shutting you down because

somebody else's transponder has failed'."

All of this was appropriately reported in CATJ (December 1978) along with a 13 page report I researched in October, titled, "The Myth of the Sick Bird and what happens when something breaks ... ." I was devilishly fond of that report for several reasons.

As good as CATJ was in reporting the aspects of this thrilling new field there were limitations. 'Way back' in mid-1977, while sitting with Ed Taylor during his final days prior to turning on Atlanta's WTCG, he casually mentioned he hoped to get San Francisco - Oakland's KTVU on satellite as well. This would give him 'two super stations', one on each coast which meant time zone differences would be easier for cable viewers to adapt to.

"But there is a six hour period each day when KTVU is not on the air; it works out to around 4AM to 10AM eastern time most days. I wonder if we might be able to fill this time with programming created by some of the larger cable systems?"

He would later call this effort 'SPN' for Satellite Programming Network.

A light blinked in my mind. I was already collecting 3/4" videotape as a matter of course when I went on the road to research stories for CATJ. I could usually locate a freelance videographer in an area - a guy (or gal) who for a reasonable fee (or gratis if they knew of CATJ) would stay with me for a few hours to a full day. From my radio news days, I was developing a TV reporting style so that the material we put on tape was more than a simple 'peep show'. Moreover, Dana Atchley III, courtesy of his dad, had a fully equipped transportable Sony production system. D-III had done a number of small PBS projects and he liked working with people who had 'unusual stories to tell'. Neither of us knew exactly why we were shooting and cataloguing tens of hours of 3/4" tape; it merely seemed like the appropriate thing to do. We shared a vision that what was happening in cable, satellite and rural television reception was going to change the face of America and for this reason alone believed the tapes would one day be a treasure throve of 'how it was - when'.

The bright idea.

Me to Ed Taylor. "Could I have an hour a week to do portraits on TV of our industry, how it is developing, where it is going?" He liked the concept, more so because this would be by and about cable TV and we would be using 'our' satellite tool to create a nation-wide bond of common experiences. Sometime after this discussion with Taylor, I called D-III on the phone and explained my concept after first

exclaiming, "We have our own national one hour TV show, live on satellite every week!"

He brought me back down to earth from the bird. "Every week - an hour *every* week??? And who is going to pay for this production?"

My time was free - it always had been, and for the TV show it would be again. I incorrectly assumed he would be so anxious to have an hour to fill weekly that his would be as well. He didn't get that message from me and I waited a day and called him back to re-explain the plan.

"Dad says he will foot my costs as long as we can work in some Microwave Associates stuff. Is that all right?" Of course it was! But the show's weekly schedule could be a killer in my already overfilled life. Option one, as I had made myself the show's host and narrator, was a trip every week or two to Colorado and D-III's facility to lay down the 'bed' for each show. That was not going to happen. Option number two was D-III coming down to Oklahoma City (a ten hour drive for him) just to shoot me in a more convenient to me location. That also was not going to work.

It took a few months to work out option three. Down in Norman (Oklahoma) the University of Oklahoma had a small but competent advanced media class complete with a modest TV studio. I visited Dave Davis, the fellow who ran the OU course, and convinced him that rather than forcing students to produce dummy TV newscasts and other trivia that nobody would ever see but the course co-ordinator at grading time, they should become our production arm. I would make the 30 minute trip to Norman once a week, or once every two weeks, and we'd do two shows at a time. With me would come D-III's insert pieces - some five minutes in length, some as long as 40 minutes. Using the raw material I had collected and/or he had shot when out in the field with me, he'd follow my rough scripts and create the finished, ready to drop into my show, product. At OU, I sat down on a set which CATJ artist Debbie Teel designed, handed the master timing script to the OU staff and away we went. If I had a studio guest, we shot that interview live and went directly to the finished tape when possible, all of the time mindful of the 59 minute 59 second clock that was ticking backwards on the record tape machine's master time counter. It was 'live-to-tape' TV with no rehearsal, no time for elaborate retakes. But hey - it was an 'industry' guy talking to industry personnel and as long as it did not degenerate into 'talking heads' (something I loathed), time would make us better.

All of this finally went on the air November 16, 1978 and by this point I had the benefit of 20 hours of material taped during the CCOS

78 extravaganza sent to satellite. In theory, our only viewers were cable system operators or their personnel who took the time and trouble to sit down at the scheduled hour to watch our hour. In fact, because Ed Taylor did not at the time have KTVU operating, I had gone hat in hand to the folks at HBO to ask them to allow 'Satellite Magazine' to be broadcast at 12 noon Thursdays over their east coast transponder. HBO in the fall of 1978 was operating 10-12 hours per day and the only thing we would conflict with at 12 noon eastern was their color bar test pattern. But HBO's channel was going into hundreds of thousands of homes, color bars and all, as well as to cable offices and personnel. The completed one hour tape went by air freight to RCA's Vernon Valley (NJ) uplink site where it became a part of the HBO weekly schedule. Fifteen years later, long after this show ceased to run, I was still being stopped in airports in cities such as St. Louis by someone who would timidly approach and ask, "Aren't you Bob Cooper - haven't I seen you on television?"

The first two shows, running through November and December, gave me the opportunity to merge what CATJ was reporting with what 'Satellite Magazine' could do even better. Which returns us to the "RCA Sick bird..." report. Early in October, Microwave Associate's Duke Brown met me at a motel near Vernon Valley (NJ) where the following morning we would jointly enter the RCA uplink station. Also coming to meet us at Vernon Valley, at RCA's expense no less, was NBC cameraman Carl Hansen bringing with him a TK-76 'Mini-Cam' - the latest gee-whiz tool of the news guys.

I was the bravado chap who was strongly suggesting they had at least one, perhaps two, sick satellites. Duke was respected for his knowledge of satellites and a very professional no-nonsense demeanor in front of the camera (something I first became conscious of during his live presentations at CCOS 78). I was a guy who ran into a gunfight with both weapons blazing while Duke was more apt to creep around the side and surprise the enemy from behind with a, "Hands up!"

In the motel we discussed the plan. RCA was obviously very nervous, but felt comfortable enough with the health of their satellites to allow us (and cameraman) into their off-limits, security conscious inner sanctum. I had extracted a "No holds barred - we get to ask anything we wish" format and although they tried to get a set of questions in advance, I refused. There were several bridges to cross between my first proposal and their final acceptance - it was intriguing that they liked the opportunity to 'set the record straight' so completely as to risk letting 'us foxes' into the chicken house, never once taking a

'line in the sand' approach ("cross over this one and the whole thing is off!"). So as I ran down the questions, Duke being a proper New Englander would raise his concerns about the lack of tact some of my queries reflected.

"You are not being diplomatic!" he finally suggested. The phone rang.

Acknowledging it was I, a voice began rattling off a long list of numbers and technical words such as 'solar array' and 'equinox'. I was writing my peculiar form of shorthand (key words only, leave out verbs, most nouns) and Duke sat watching for 15 minutes. I said perhaps ten words total back into the mouthpiece before hanging up.

"That's it!" I threw at him, slamming down the instrument. "That's the key element 'we' have been looking for. Now we know what is really wrong with the satellite! I think we have RCA between a big rock and a bigger rock."

What the caller had told me (no, even today I won't reveal his identity) was in great detail a problem RCA was experiencing with their satellite. It went like this, in 50 words or less.

All satellites derive their operating power from the sun. Solar collectors grab the passing rays, chemically turn those into electricity and then send the resulting voltage to a bank of batteries which operate the satellite. The 'solar array' must track the sun, following it around the sky since the satellite rotates at the exact same speed around the earth as the planet rotates on its axis. So the solar array is constantly being adjusted, tweaked, to point straight at the sun. But my telephone source claimed the tracking mechanism was damaged during the launch and deployment phase (when the satellite was released from the capsule carrying it atop a multistage rocket). The array refused to rotate the full 360 degrees and every day, 365 days a year (366 on leap years) when it reached a certain point, rather than continuing like a clock hand past that point, the on ground controllers were required to send a command from Vernon Valley, stopping the tracking, and then execute a 'fast reverse' for about 340 degrees (out of a possible 360 degrees). It took about as long for the entire solar array (approximately the size of a 40 passenger bus) to reverse-wind to a new restarting point as it did for the satellite to reach a point where it needed to be pointed just past the 20 degree 'bad spot' window.

OK - it took more than 50 words to explain. But the essence of this was perfectly clear to mild-mannered competent engineer Duke Brown.

"This satellite is running on borrowed time."

Precisely. No designer ever intended that once each day the huge solar array would be put into reverse. When it was forced against its natural will to run backwards, the entire container was being stressed. Significantly. And bumped and jarred. Think of it this way. You take your Sony TV set and place it on a full sized trampoline. Then you find ten teenagers to jump up and down on the tramp. Every day for about an hour. And how long do you think it will take before the Sony stops working?

"When do we drop this bomb shell on them?" asked my partner in conspiracy. We talked it out, and decided the best approach would be to do the 'easy stuff' first - let them give us a full tour, with the TK-76 running and creating the valuable 3/4" tapes we so badly coveted for our intended 'Satellite Magazine' report. Then towards the end, we'd find an opportunity to drop 'full reverse of the solar array' on them.

I'd like to think the first few hours put them at ease. We asked tough questions and they gave us what appeared to be honest, even convincing answers. For each loss of signal 'incident' (such as June 21, 1978) they had an explanation. Better than that, they took me (or Duke as was appropriate) to a specific portion of the uplink facility and demonstrated exactly what they had been doing when the signal outage occurred. They were taking responsibility for many of the outages, and showing us how their 'maintenance program' resulted in some signals being lost for 'short periods of time'. Best of all, they were accepting responsibility for these outages - which had the beneficial side effect of diverting us from pursuing the more pressing question - "Is the satellite sick???"

What we got out of this was a promise, in the future, to not allow the PR (public relations) guys insert between their work (and therefore the satellite's working) and their client base. They freely gave out emergency telephone numbers for the cable folks to call when they had questions, and by the time we broke for a well earned lunch (courtesy of RCA) nothing could have been cozier. But I knew what was coming immediately following lunch.

Archie Miller, the RCA man in charge, and Bob Bennett, the man running the actual uplink station, perhaps believed we were about to wrap it up. They knew our plan was to go 'down the road a piece' to the Western Union uplink facility (also in Vernon Valley) after finishing with them and over catered sandwiches and salad casually asked if there was anything else we wanted to see or do. The TV camera tour had gone from top to bottom, and in fact there was no segment of the

facility we had not seen, not put on tape, not discussed. I looked at Duke and he reacting by shifting his eyes to stare down at the floor.

"Well, yes - there is one more thing." And I laid out the essence of the reported solar array problem. Miller turned white, Bennet joined Duke staring at the floor and there was total silence. You could hear the powerful motors pumping tons of fresh air into the transmitter room tens of yards away. A chap joining us for lunch, Bob Youngblood, broke the silence by suggesting that he, Miller and Bennet retire to another office "to discuss this question".

This left Duke and I munching on suddenly not very appetizing sandwiches. The office they retired to had glass walls and we could see (but not hear) them discussing my question. Ten, fifteen minutes passed and they returned looking very solemn; not the camaraderie we had experienced when first sitting down to lunch. Duke was uncharacteristically nervous. He had already voiced to me his concern that, "the NBC guy has 'our' tapes and if we are booted from here, how do you get the tapes back to Oklahoma City?" I had filled three rolls of 36 exposure ASA 400 black and white film with still shots, both he and I had committed to memory the lengthy and detailed tour segments but nothing would replace the tapes - if something happened to them. I had moved the spent still-film cartridges out of my briefcase to an inside coat jacket pocket - just in case.

Miller: "OK, let's talk it out." And we did for 30 minutes or more. That was when we learned the story was true, but, we had the wrong satellite! It was the F2 satellite, not the F1 (they claimed) with this problem. Miller suggested, "That is one of the many reasons why cable TV was moved from F2 to F1, back on June 1st."

This informal discussion was a rehearsal. When we seemed to have the story revealed, I suggested we, "do this one more time - with the camera rolling." Miller again asked to be excused and I later learned he went to a phone and spent 15 minutes talking with somebody much higher up at RCA. He came back with an affirmative answer. "We'll do that."

All of this made extremely good television - and when *Satellite Magazine* debuted on November 16th, the audience within the cable industry was bordering on huge. Duke and I had ventured into the lion's den and left alive with footage that would never again be repeated nor allowed. It is a tribute to its timeless quality that as late as 2000, the pair of RCA-visit one-hour editions of Satellite Magazine were still appearing on satellite in the Pacific and Asia.

I must also reflect on our secondary visit, to Western Union's

Vernon Valley uplink site, nearby. There were few revealing observations. Perhaps the most telling was the attitude of the employees there we encountered. They told us some 'corporate stories' of which my favorite ran like this:

"Back some 85 years ago or so a man named Edison came into Western Union with an invention. Western Union saw no future for it and sent him on his way. Later, a chap named Bell tried to talk us into adding voice to our telegraph lines around the turn of the century. We didn't think it would ever amount to much and he too went on his way."

Essentially, this history repeated itself when the first cable TV planners raised their hands looking for recognition. Crippled because their satellites were too small (too few channels available) and hampered by a corporate mentality that apparently had changed only slightly from the visit by Alexander Graham Bell, Western Union simply missed the boat. How satellites 'happened' first at Western Union is an involved story; how they failed to use them to maximize profits and make the biggest impact on industry is much clearer. All hands with special skills and vision, such as Ed Taylor, simply abandoned the ship taking with them what little innovation as the company may have briefly held.

PBS INNOVATION SPURS THE COMMERCIAL NETS

For all of the accomplishments that Western Union did not reach, there were a few which would ultimately play a major role in the development of home dish systems. RCA was so preoccupied with the cable TV industry, and connecting Alaska to the mainland (through satellite F2), that it was not chasing what would ultimately become a major part of the appeal of a home satellite dish; individual program feeds from CBS or ABC to their affiliates, and the distribution of syndicated shows (such as "Entertainment Tonight") via satellite. Western Union was on top of this ad-hoc, part-time linking business along with holding a major and very important contract with PBS, the USA's educational television service.

While ABC, CBS and NBC (there was no Fox in 1979) pondered what to do, if anything, with satellite, PBS was well down the road to interconnecting all of their affiliates through satellite. PBS had a grand 'satellite plan' as early as 1968, before there were US domestic satellites. This proposal gave PBS something to eschew when trying to maintain an even keel while defending the frontal attacks on the public broadcasting system during the Richard Nixon era in the presidency. Nixon believed PBS was riddled with left wingers, perhaps closet-communists (a mindset Nixon carried with him from his '50s era days spent with Senator Joseph McCarthy), and during his administration, the federal government tried to cut off PBS funding in retaliation for what he judged to be liberal-bias coverage of his administration.

Out of this showdown at the PBS corral came a master plan that

brought the educational network to satellite linking before any of the commercial networks could spell satellite. This meant that anyone with a home dish system would immediately gain access to a wide range of time-zone-slotted programming which PBS was already distributing, as the first home dish systems 'turned on'. For many, PBS was a major reason why they would, in the first years of the 1980s, purchase a home dish system.

As 1979 evolved into 1980, PBS-on-Westar was for the central portion of the United States the most powerful signal raining down from above the equator. Those backyard inventors who would become the business leaders in home dish systems were grateful for the PBS presence because it allowed them to fashion crude receiving systems that produced PBS television, and as they learned their new trade better, graduate to the less powerful (although infinitely more entertaining) HBO and cable products.

CATJ for December 1979 did a summary of all satellite programming services available in North America. Westar 1 (at 99 west) had 8 (of 12) transponders with part or full-time television including SIN (Spanish International Network). Westar II (128.5 west) had 4 of 12 transponders with some video material. RCA's Satcom F1 (135 west) had 19 of 24 transponders scheduled for video. Those were the most important satellites, while Canada's Anik 3 had up to 3 video channels for at least some parts of the day and RCA's F2 was experimenting with as many as four TV channels, one of which would evolve into a first-time live TV service for Alaska.

But with the typically large reception antennas required, changing the dish's direction from one of these satellites to another could be a 15 minute (or 15 hour) exercise. The home-dish world's automatic antenna moving motor was years into the future and 'changing satellites' involved two or more people, five pound wrenches, and a bit of luck. It was not something one did casually in 1978-79. Cable operators only moved their dish from one satellite to another on rare occasions; many never moved the dish after it was installed and 'peaked' on the desired satellite (typically always RCA's F1). Thus cable operators were ill-equipped to keep tabs on how satellite 'traffic' was developing on other satellites.

Through CATJ, my home laboratory 'kept watch on' the satellites which cable operators did not hone-in on; one from RCA, two from WU and the Canadian trio. And I reported routinely on 'what was there'. Cable readers of CATJ felt it was a valuable service as in this way they did not lose sight of the rapidly growing satellite world beyond

their F1 satellite. But the real target for this information was the rapidly growing cadre of home dish aficionados. And the FCC, which oddly enough, depended upon CATJ to keep them abreast of this activity element as they did not at the time possess the necessary equipment to monitor satellites themselves.

This presented some 'grey area' borderline situations for the Commission. I had obtained a 'Developmental License' in 1978 after determining that without it my CATJ reports ran the risk of being classified as 'unauthorized reception of private communications'. The FCC assigned WF92 'call sign' granted to me was plastered on some of my dish antennas largely so the many photos I and others took and published of my Guthrie, Oklahoma installation would not be considered 'illegal' activities. To obtain the Developmental License involved first filling out reams of paperwork created by the FCC for totally different application purposes (WF92 was the second such license granted; the first went to Ted Turner who wanted his own transportable terminal primarily to haul to Rhode Island where he was chasing the America's Cup yachting prize). Attached to the application, the Commission required one or more 'Letters of Permission' written by one or more programmers or others who were using the satellite. This was to be the focus of my primary activity for 1979; the 'licensing' challenge.

As CATJ's editor-in-chief and CATA's technical guru, convincing the various programmers to grant me permission to 'tune-in' their transmissions, legally, was hardly a challenge. Even HBO agreed. When 'Satellite Magazine' began a weekly schedule in November 1978, I offered to help out home dish owners by writing a letter for them as the producer of the show 'authorizing interception' of my copyrighted telecast. Almost nobody who asked for and received such a letter actually went through the pain and agony of making application to the FCC; my advice to them was to post the letter from Satellite Magazine on their wall in case a FCC snoop ever dropped in and asked them to justify why they had a satellite dish sitting outside their window. That they 'might' also be watching HBO, WTCG or Canada's evening news through Anik as well was understood, at least by me.

Early 1979. This would be 'the year'. First, I was heading for a known-only-to-me midyear exit from CATJ and CATA. Second, because of the TV Guide article and CBS Evening News report, my home office overflowed with requests for more expansive 'coverage' by some interesting media groups. Japan's NHK, for example, would be sending a full production crew to Guthrie, Oklahoma early in the year to spend

three days with me. NHK left nothing to chance - hiring a helicopter for a day to shoot and reshoot (and re-re-shoot) from above my 5 acres of antennas and towers. *Mother Earth News*, still at the time owned and operated by founders John and Jane Shuttleworth, wanted to make me the subject of one of their 'Plowboy' interview features. Further, the magazine was, with my help, developing a plan to create their own satellite TV network to carry their unusual content message into millions of homes. John and Jane in turn introduced me to TV and movie actor Eddie Albert, who as a close friend of the publishing duo, was somehow going to be involved in their plans for a Mother Earth News Satellite TV Service. Naturally Albert 'had to have' a home terminal, 'now' (as in yesterday).

Then there was a rapidly nearing completion series of articles to be published in Radio Electronics, the original writer's school from my mischievous youth, which would lay out in excruciating detail every part and piece required - with step by step assembly instruction - to build a private home system. And if I did not have enough on my plate, the American Radio Relay League (ARRL), the 1917 origin ham radio trade association, was camped on my amateur radio doorstep urging me to do a monthly column "about microwave communications" for their *QST* magazine.

By leaving CATA and CATJ, I knew (if they did not) that CCOS 79 was not going to be 'my' problem. But a replacement was already in mind. From the thousands of letters and cards flowing into my office monthly, and the thousands of $7.50 per copy 'Home Satellite TV Reception Handbooks' going out of our post office, it was clear to me that by midsummer, the timing would be right for the first-ever 'home satellite terminal conference'. It would be in early August, held at an Oklahoma City junior college campus, and more than 500 people from throughout the world would pay $125 to attend. The real fun was just ahead!

All of this came to a head one January evening as I was leaving the office in Oklahoma City for what was nominally a 30 minute drive to my home nee laboratory in rural Guthrie. It had been snowing for several hours and my Chevrolet station wagon was not equipped with chains nor snow tires. What it did have was some ham radio equipment and one of these items mounted under the dash was a radio link, virtually private to me and my wife Susan who also held an amateur license. As I got into the frost bitten car, and 'checked in' with the family, the extent of the winter storm became apparent. As is traditional in Oklahoma, a cold front had overrun warmer Gulf of Mexico air and

the temperature from noon onward had steadily dropped from mid 40s to below freezing. In that process, the cold front slide from the northwest over the top of the gulf air and it began to rain. As the temperature continued to fall the rain turned to sleet, and then an hour later the sleet to snow.

The entire region was coated with ice and then several inches of still falling snow.

"This could take a while," I offered on the radio link. All around me, abandoned vehicles and many more that would shortly be abandoned. This sort of thing happened often enough that I had a backup plan in place; check into a nearby motel and wait the storm out. Driving 25 miles through ice and snow was more foolish than bravado.

"I have your favorite dinner waiting," tempted Susan. For the record, that would be boiled beef tongue. "And the kids are anxious to see you."

I had returned earlier that day from Washington, and I was equally anxious to be at home myself. So I plodded on. Three hours later I was still mobile, but barely, and the uphill part on a road which probably had not been used for several hours lay ahead.

"The tongue is still good," Susan offered. It was difficult to ruin beef tongue once it had been cooked. "But I am going to have to put Tasha to bed shortly - Kevin says he is going to wait up for you." It was apparent their school bus would not be stopping in front of our house the next morning. Our isolated home was difficult enough to find when the roads were clear; with the storm, well, there had been occasions when we were homebound for as long as three days.

To this day I am not sure where what I said next came from; obviously from deep inside. I had not consciously harbored similar thoughts previously.

"Pack your bags!" said I into the microphone. "This is stupid. Why would anyone deliberately choose to live someplace where it does this when we could just as easily be living where it never snows!"

Susan's response was a muffled laugh overridden by the screams of delight heard in the background from Tasha and Kevin.

"Dad, can we move to Florida?" It was 10 year old Kevin. "Tonight?"

Obviously I had touched a raw nerve, however unrealistic it might seem on the surface. One hour later I slid into our driveway quite exhausted by the day and the four hour drive. The snow was now turning into a blizzard and it was obvious nobody would come into or leave this driveway for at least a full day.

Kevin pulled open the front door after cracking the ice that held

it in place. A candle was being lit behind him by Susan, the power having just shut off because someplace in rural Guthrie ice laden lines had collapsed. There in the flickering candle light, Tasha, Kevin and Susan standing in front of four suitcases, packed and ready to go.

"Dad, the satellite TV just quit."

If this is Tuesday, this must be Grand Turk

In mid-March, the four Coopers alighted from a DC-3 that had flown a slow, grinding path from Nassau, Bahamas to Grand Turk Island. For those who do not recognize Grand Turk (GDT), it is the capital of a small British enclave known formally as 'The Turks & Caicos Islands'. Still confused?

Locate Haiti and the Dominican Republic, west of Puerto Rico on a map. Now trace upwards on the page (that's north) to a tiny group of perhaps unmarked islands; that's TCI. The only way in and out was through a twice-weekly DC-3 which was outfitted with temporary seats slung on board to fit in and around the cargo for a four to six hour series of jarring starts and stops working its way from Nassau down the full Bahamian chain to terminate at GDT.

How we got there is worthy of a paragraph. It took two days for the ice and snow clogged roads to clear which didn't bother me very much - give me a typewriter and some scraps of paper and I was away. But Tasha and Kevin felt I had made them a 'promise' - to move someplace where it did not snow. Wife Susan was ready for a break so we held a series of family summits, unable to get out of the house anyhow.

"This could be a serious decision," I lectured. Tasha came to the meeting and pushed a chair away from the kitchen table, preferring to sit down on her still packed suitcase from the night of the storm. She was voting with her rear end. Susan thought, "Florida might be nice," but I had a more outlandish plan in mind. Susan and I had spent a delightful year living on the island of St Croix in the American Virgin

islands (1968-1969) and had only returned stateside because she was pregnant with what would become Kevin in July of that year. St Croix in 1969 was not an attractive spot to have your first child if one had some medical problems and Susan had more than her share. Tasha was the end of that flurry of activity; no more kids.

Buried in the rear recesses of my mind was the pending confrontation with the IRS. I had done some research and discovered it was possible as an American citizen to live abroad and earn $75,000 per year without being liable for income taxes. So what about living someplace 'abroad', where it never snowed, where they spoke English, where the US dollar was used, and from which one could, when required, get back into the USA with a minimum of effort. That thinking led to Cayman Island (south of Cuba) and the Bahamas. The Bahamas in 1979 had not fully worked out what being 'independent' from Great Britain's colonial status really meant and I uncovered many unpleasant stories (up to and including American people being slain while there) that pretty much made up my mind about this option.

Grand Cayman was more attractive until I ran into a fellow who wanted to be the first to introduce US television there through a satellite terminal. He was adamant that Cayman was not very friendly to new ideas not controlled by their own government. So I added a new requirement: "A friendly, open minded government."

By chance, a local ham radio friend, Jay Liebmann, mentioned he was hosting a visiting ham from the Turks & Caicos Islands. My ears pricked up - as a ham I of course knew about TCI (hams know more about strange, unlisted islands than any other group of people in the world, including numismatic enthusiasts), but for some reason it had never entered my radar screen.

Edmund Ewing was late 30s, black as the ace of spades, and spoke with a delightful mixture of 19th century Queen's English and Bahamian street idioms. It was close friendship at first meeting. Edmund had just agreed to work for Liebmann for a few months, to build up a nest egg large enough to return to his home island and using the money earned put a roof on his family home. His island was Providenciales or like the town in Utah, 'Provo'.

Provo in 1979 had an estimated 600 people on its 23 mile long, 3 mile wide essentially deserted collection of coral and sand. "No, there is no electricity unless you count marine batteries charged with small gasoline generators as electricity." And, "No, there is no telephone - that's why I a ham, mon!"

I pumped Edmond for every detail he could provide and he quickly

worked out my interest was more than idle curiosity.

"I want to visit there," I told him. "Soon." He asked if I wanted to operate ham radio while there. Silly question - every ham wants to be on an island with no other hams and be a 'rare' (DX) contact. It took a month of tediously slow communication to arrange the trip and a place to stay.

Standing on a broken asphalt tarmac at Grand Turk's airport, surrounded by most (but not all - some had been mistakenly off loaded someplace in the Bahamas and would never be seen again!) of our luggage, a new challenge.

Customs and immigration consisted of one man who had no interest in us or our bags. He also doubled as the Bahamas Air rep and he had even less interest in our missing luggage.

"We want to go back to Provo," I asked. He gave me a strange look and said nothing. "Is there a plane to get us to Provo?" Still no response.

We had flown eastward passing over Providenciales about 20 minutes before setting down in GDT and it looked vulnerable and inviting from 7,000 feet. But we were now nearly 75 miles past that point and had to backtrack.

A silver haired man, Caucasian, came our way. On first impressions he rated a 2 on a scale of ten; torn, filthy, grease covered shorts, broken sandals, a T-shirt which even I would have thrown away as unfit for washing my car.

"Provo?" he asked. I responded in the affirmative and without a word he motioned my family to follow him to a tail dragging Beechcraft plane I initially thought had been parked and forgotten as junk years prior.

"You have money?" he asked. I confirmed we had money.

"$400?" he asked. We had just paid $400 and change for a 500 mile flight spread over 5 or more hours from Nassau. He wanted the same amount to haul us 75 miles in this throwback to the Sopworth Camel?

"Take it or leave it - doesn't make me any difference. I'm going that way, you can tag along for $400."

I counted out the money and the kids began to argue about which seat was theirs.

"You," he said pointing to me - "Up here in front, with me". For $400 I was going to be co-pilot.

"Dad - I can't find my seat belt." It was Kevin.

"Don't have any," was the pilot's curt explanation. "Don't make no difference no-how, when we go down, he'll be better off without one

'cause he can crawl away faster before she blows up."

Not "if" we go down. Not "if" we blow up. But "when ... ." Welcome to the Turks and Caicos Islands; 1979 style.

We stayed on Provo for ten days, enjoying the total luxury of no phones, no stores, nobody asking you who you were and what you were doing there. Out of the alleged 600 population, perhaps 100 were white (as in Caucasian), mostly from the USA with a smattering from Europe. I would in later times learn most of these were 'hiding' - from something, someone, somebody. Or something, such as the IRS.

The house we had rented 'long distance' was owned by a Texas couple. She did something I never understood, he was resident sales agent for a real estate developer headed up by Richard 'Dick' duPont. Yes, 'those' duPonts. On our last full day on Provo, Brian Hunsacker took me out in a jeep held together with chewing gum and bailing wire to drive along a five mile white sandy beach. There was not one single building on this beach - known as Grace Bay. By 2002, world famous magazines would nominate this very beach as 'the very best swimming beach in the entire world'.

"Two acre lots, $50,000 each," he pointed.

"On the beach?" asked I, not sure I had all of the sand out of my ears.

"Go back one layer and they are $30,000," he answered, perhaps concerned that I thought $50,000 for 250 running feet of white sandy beach was too expensive. In 2003, the same $50,000 would buy 5 running feet of beach. But I couldn't see 24 years into the future of course or I would have been tempted to 'sell' Kevin and Tasha to buy every foot for sale.

I agreed on the spot to buy one of each; 250 feet of beach and the immediately rear adjoining lot; 3 acres total. Of course I had no idea how I would pay for this but Hunsacker seemed so delighted to have actually made a sale that he didn't care as long as I would sign the sales agreement before leaving Provo. Hauling us back to the tail dragger the next day for our flight to GDT, he volunteered that this was his first sale in over a year.

"We don't have many tourists here," he admitted. Silently, I thought, 'Great - that's precisely why I will live here'.

So now we had a destination. Susan was showing worry about how the children would be schooled so I dug around and located a Baltimore, Maryland 'school' that catered to children of families stationed 'abroad', a correspondence school calling itself Calvert. That was the easy part - getting to Provo would be a different matter.

Before I left for the sojourn to 'the islands' CATJ for March had been buttoned up. I knew, Rick Brown knew, but nobody else did - not even Susan - that I was within two, perhaps three issues of being gone. March's magazine was the first of three I intended to do as 'pressure points' on the FCC.

Back in April 1978, CATA's Steve Effros and I had filed a petition with the Commission urging them to consider dropping all licensing for all TVRO (television receive only - earth stations). Over the holiday period at the end of 1978, they had released a document, CC 78374, asking for written comments on a new plan to abolish all licensing requirements. What this would mean for cable systems was a savings of typically $3-5,000 per terminal, doing away with the voluminous custom paperwork each application required. More importantly, what this would do for my master-plan 'home dish industry' was remove that one last stigma attached to a wide open, very public, system of building, selling, installing home dish systems for consumers. This was 'the big one'. Once the FCC stepped out of licensing, there would be no federal regulation applying to satellite reception terminals.

Dana Atchley at Microwave Associates had harped on this long and hard, showing a reluctance for putting his company's name on products which were obviously designed for a 'grey market' with regulatory problems. It was the reason why his firm did not build and sell police traffic radar jammers although they were more than willing to sell the parts that allowed somebody else to build such a gadget. Rick Brown had advised me, correctly, that if someone came to him seeking verification of the potential market for home terminals, he would be forced to point out their questionable legal status as long as the FCC was requiring licensing.

In the limited issues remaining, I had to focus on this question and somehow leave a legacy that pointed the Commission towards ending licensing.

March's magazine featured a man well known in Canada but hardly a household name in the United States; David Brough. His photo on the front cover was pretty bold on our part, with the sizeable caption, "Canada's 30 Station Pirate TV Network King." Brough had come to Oklahoma to spend a weekend with me, bringing along a selection of photos and some of his technical handiwork. His object was to learn all he could about the satellite delivery mechanism as he was, at the time, custom making 10 hour Betamax tapes for physical shipment to his 30 station 'pirate TV' network.

Back in October 1978, I had done everything I could to attract the

attention of the Canadian bureaucracy operating that nation's 3 satellites. My detailed report suggested Canada had spent far too much money on a satellite program which was totally ignoring the needs of the very people for whom they claimed it existed (rural Canadians living in the outer reaches of the country). Now in March CATJ was zipping up the body bag on the Canadian authorities and pronouncing them 'DOA'. I used David Brough's initiative to make the case.

Brough had spent five years attempting to create or encourage or father a system of low-cost, low power (1 watt) 'TV stations' for communities that either had no television at all, or, were limited by bureaucratic mismanagement to the wrong kind of television (for example, Longlac, Quebec where the CBC government service delivered an English language TV channel to a community where 75% of the residents spoke only French).

Brough was an unlikely candidate to become the most hated person at the Canadian Radio and Television Commission. He began his commercial life as a children's entertainer working primarily with retarded kids. This led to a stint as a puppeteer for a Toronto TV station. And that led him to realize that television was a two-edged tool; it could entertain, or it could inform, but seldom did both simultaneously.

Across northern Canada there were several hundred remote communities. Many existed solely for the benefit of a single mining or logging business ('company towns' such as Pickle Lake, Ontario) while others were primarily inhabited by Eskimos and the occasional southern Canadian who bought their trapped furs and shipped them south. He created, in his mind only at first, the 'Northern Access TV Network' which he hoped could be heavy on the informing and light on the entertainment.

His concept, learned at the feet of such Canadian cable TV super-engineers as Sruki Switzer, was to take off-the shelf cable and apartment house TV distribution equipment (from Canadian firms such as Benco) and assemble 1 watt TV stations which would reach the 50 to 500 families in such communities.

He spent five frustrating years banging his head and knuckles on doors and desks throughout the Canadian government. First he ran into the CBC, which considered all television to be their responsibility. His proposal for a low power TV station was taken by the CBC and 'dressed up' for discussion. His projected cost of $10,000 all up quickly dissolved into a CBC plan that included 25 watt transmitters and $25,000 color cameras requiring two full time technicians to maintain. The CBC said what David wanted to do was 'not professional'

and their suggested replacement was $100,000 or more, installed. Even the Canadian Department of Indian Affairs (on behalf of the Eskimos) found his plan 'too simple' and when their bureaucracy finished 'fine tuning' the proposal, costs had risen to CBC ranges.

"Five wasted years," according to Brough. So as CATJ for March 1979 reported, he took a big chance and using borrowed funds built his first station for the community of Pickle Lake, Ontario. His concept, evolving over five years, was to marry 'local origination' (LO in the trade) with taped programming he snared off the air (through a cable TV connection) in southern Canada (first in Toronto, then when the feds closed in on his apartment, he moved clandestinely to Ottawa).

CATJ reported:

"At the very least, each station must break even - although my own time was essentially 'free'. I told them, put money raised in the community into a trust account and elect your own board of supervisors to govern disbursement of the money. When I turn on your television station and you are satisfied with the pictures, then you will pay me an installation fee. And each month you will collect a fee from each TV viewing family in town and pay me a portion of that fee to continue supplying programming to your TV station."

Pickle Lake existed because of a copper mine. The mining company, when they saw the station actually happening, agreed to pay the installation fee as a means of maintaining better morale amongst their employees and families. It was a precedent to be repeated several dozen times across Canada from Northwest Territory camps to Labrador City in Newfoundland.

Where the CBC would build a purpose-constructed building, import a 100 foot tower for the transmitting antenna, and install $20,000 tape decks, Brough found a local housewife with a spare shelf in her kitchen and a pine tree to loft the antenna.

The message here, and it was strong, was simply this: When law abiding people of good intentions exhaust all possible avenues of accomplishing a worthwhile task, they resort to breaking the law. It was the Boston Tea Party in Canada, only this "t" was television. Brough was clever, designing from scratch a modification of consumer Betamax decks so they would play 'reel to reel' ten hour video tapes which was a significant technology breakthrough for his basically loosely-attended rural stations. He was also smart enough to engage as advisors some of the best engineers in Canada's cable TV industry (secretly because to be open about it would have cost them clients and money), resulting in stations that delivered reasonable quality TV to perhaps 50,000

Canadians who otherwise would have gone without any television.

Brough's idealistic view of local origination (local people putting on local shows) was perhaps more scholarly than practical. Two excerpts from CATJ's story illustrate.

"We had a small boy bring in a puppy he had found in the street. The station manager stopped the tape and switched to the kid on camera as he described where he found the dog. The station manager volunteered to 'hold the puppy' until the owner showed up. Five minutes later, a new knock on the door. Another child with another dog. The tape was stopped and the scenario repeated. After an hour of this, the TV studio had turned into a 'waiting room' with perhaps a dozen animals. And the phone was ringing again.

"The next kid that brings a dog in there is gonna have to answer to me!" It was the town mean person. "And the next time you stop that gawd-damn machine to put some punk kid on there with a mongrel I'm gonna come down there and punch you in the mouth." And so ended this particular local origination experiment.

Brough on local advertising.

"Most of these communities have one general store (operated by the Hudson Bay Company) and one bar. There isn't much room for competition and that suggests selling advertising is not going to raise much income. In one town, a 'lady of the evening' asked to purchase advertising time to 'promote her business'. We pondered that for awhile and then remembered the episode with the dogs. We considered rounding up several 'competitors' in this particular field of work and bringing them into the studio for a talk show. Only I was not sure how the married women in town would take it!" To which I added, "Apparently ladies of the evening are not married in the Far North!"

Brough's existence was conditioned on a fear by the Canadian authorities to do something in place of his first-time services. He was, after all was said and done, operating without:

1) Anyone's permission to be taping and distributing US and Canadian TV programming,

2) Nobody's permission to be shipping the tapes in town to town bicycle fashion throughout Canada for rebroadcast,

3) No sanction from the Canadian government to operate his one-watt transmitters.

My message was loud and clear. Deny people without adequate television access to television which is in fact available if the rules and regulations are ignored, and they will be ignored. I hoped the FCC was paying close attention as they began consideration of the 1978

submitted proposal to eliminate the burdensome licensing requirements for dish receiving systems.

Brough had discovered the soft underbelly of the Canadian authorities who did make two attempts with the RCMP to shut down his stations. Both failed when local townspeople stood firmly with axe handles poised between the mounties and the station equipment. In a third attempt by authorities to shut down a Brough service, in Longlac (Quebec), the mounties confiscated the station and were about to exit the town when word came the locals had planted dynamite at the base of a CBC tower and were preparing to demolish it. The mounties quickly contacted higher up authorities in the south who recanted and the station's equipment was returned intact.

Brough had become a master at embarrassing the government. They had two choices - arrest him and shut down the network, or turn the other cheek. If they had chosen the first option, the flow of ten hour tapes would have immediately stopped and the stations would go dark. Unprepared, unable, to provide an instant replacement service, the government realized that Brough was actually providing a public service which they could not duplicate and thereby contributing to quality of life and the tranquillity of their northern wards. There had been an early parallel in the United States; those 'booster' stations built by residents of the western states in the 50s and 60s. Then as in the late 70s in Canada, the authorities decided 'turning the other cheek' was the correct decision, if only for a few years until a substitute was fashioned.

April 1979. With my personal bailout clock running, I had one more important 'mission' for CATJ to accomplish. CATJ had added 'several thousand new subscribers' during 1978, a rather impressive number for a cable television industry technical publication. Essentially, everyone of these new people had virtually nothing to do with the cable TV industry. They were subscribing because CATJ was the only significant source of 'satellite TV information' in the world. We were routinely publishing letters from new readers in such distant points as Ecuador, Colombia, Malawi (a country in Africa) and Australia.

I saw an opportunity here to 'use' (that is the correct word) CATJ to launch my long planned private/home terminal industry in a way that I hoped would slide by the folks at CATA. It was going to be a close call, because they were already quite nervous about what they saw happening. I decided to take advantage of their nervousness by yanking on some sensitive strings.

In the April CATJ, I wrote:

"Shortly after this new rapid growth in subscribers began, people who obviously were not a part of the cable TV industry were asking if they could attend CCOS 79. At first I did not see any harm in this if they were willing to pay the registration fee like anyone else. In subsequent months I changed my mind, primarily because I got the distinct uneasy feeling that we might end up with more 'private-sector-satellite' people in attendance than cable people. CCOS is, after all, 'our' annual show.

"Still, there is no effective way to police attendance at CCOS 79 at Lake Geneva (Wisconsin) this year so some other plan had to be devised to make it plain that CCOS 79 was probably not their best choice.

"So here is what I plan to do. We will put on, separate and distinct from CCOS 79, and having absolutely nothing to do with CATA, a 'Satellite Private Terminal Seminar' (SPTS). Tentatively I plan to do this for three days here in Oklahoma City August 14-15-16. I've arranged for a local Junior College district to allow us to use their facility; we will have one large auditorium that will seat up to 500 people and a group of 'classrooms' where up to 70 people can gather."

Older, not necessarily wiser, I am (slightly) ashamed by this overt deception, today. At the time I thought it was a pretty clever way to create the yet-to-be-born private terminal industry's first trade show and use CATJ's significant readership to ensure the success of the new venture. Looking back, I am not nearly as convinced the 'threat' that non-cable people would "take over CCOS 79" was as I represented. But my rhetoric did convince CATA and my two partners in CATJ that holding a Satellite Private Terminal Seminar would take the 'heat off' of CATA's annual show. Actually, what it did was essentially kill CCOS 79. But as it would turn out, I wouldn't be there anyhow.

To make the SPTS decision easier for the readers, a two page registration card was bound into the April edition. And simultaneously, my multiple-part series describing how one could build their own home dish system for a few hundred dollars was launching in Radio Electronics Magazine where, I insisted, a promotion for SPTS also appear. In my April announcement, I forecast:

"I fully expect this first-year SPTS to be a sell out."

There was no disappointment here. By the middle of June, every available seat in the 500 person auditorium was gone at $125 a head; two months before the event! Quick math done on the back of an envelope confirmed there was not going to be a problem coming up with the money to purchase that 250 feet of pristine beach front on Provo!

April's CATJ also covered another subject which, as fate would determine, would come very close to totally upsetting my SPTS apple cart. That was MDS or Multi-point Distribution Service (television). MDS was a would-be competitor to cable TV. The FCC had modified some rules to allow entrepreneurs to create microwave terrestrial transmission systems which were capable of delivering one or two channels of TV service into homes and commercial buildings from an elevated point. MDS was cable TV without any interconnecting cable. And the cable folks looked upon it with a level of fear approaching paranoia.

MDS was a 'secondary' use of some microwave frequencies (2.15/2.6 GHz) originally set aside for educators to use. The educators spent nearly 15 years trying to fund this frequency band and with limited exception failed. Now it was the entrepreneur's opportunity.

MDS, like cable's rush into satellite technology, was essentially a pay-movie service. The earliest MDS operators deliberately sought out geographic regions not served by cable hoping to cash in on cable's notoriety as a provider of recent release (pay) TV movies, such as HBO. MDS per-transmitter coverage was limited to 15 miles or less. It worked like this.

Because MDS was 'line of sight' (essentially, the receiving location had to be able to 'see' the transmitting antenna to receive a signal), a 10 to 20 watt transmitter was located at an elevated site. Out in the field, small MDS-frequency range antennas (typically physically smaller than home-style UHF channel antennas) were equipped with an antenna-located 'down converter' device which electronically changed the microwave channel to a standard TV channel which a normal TV set could receive. Put up the antenna, connect a piece of cable to the antenna mounted down converter, run a standard (Radio Shack available) piece of coaxial cable to the TV set, connect it to a power supply gadget, and then a final short cable to the TV set. Instant MDS reception.

At the transmitter, the earliest operators connected a tape machine into which they placed cassettes of movies recent enough to make them desirable. 'Subscriptions' were sold door to door with fees in the region of $10 monthly. Later, MDS entrepreneurs began connecting their transmitters to satellite received feeds using movie services such as Showtime or even HBO - thereby saving them the expense and pain of messing around with cassettes and tape decks.

Ike Blonder (Blonder Tongue Labs) was one of many associated with the cable industry who saw MDS as a misappropriation of an FCC frequency intended for quite another purpose. Ike believed, "MDS

systems should not be pay movie machines. The FCC never intended for MDS to turn into a poor man's STV (subscription television) system and should be prohibited from carrying pay movies into homes and apartments."

Their ultimate legal status aside for the moment, MDS had a weakness so large you could march the entire Russian army through. It was not in any way encrypted. The FCC in licensing MDS included a phrase that read: "...(the) carrier will provide complete security of transmission." But no operator was employing any form of security. FCC spokesman Richard Pullen defended this lack of conformity to the rules with his own interpretation:

"First of all, I think the best security is the simple fact that we are dealing here with microwaves; and a low power microwave transmitter at that." And then as an after thought, he added, "All radio is, by definition, interceptible." (sic)

CATJ, to make the point, was the spokes-publication for the cable TV industry's technical world. MDS, more out of fear than reality, was looking more and more like a competitor to cable. I felt, therefore, one of my responsibilities was to include in the report an analysis of 'the' MDS weakness. Which perhaps was best expressed by someone I interviewed who was watching MDS without paying the monthly fee.

"If the MDS operator doesn't want me intercepting his transmission, then he can just keep his transmissions off my property. When he figures out how to keep me and my family from being irradiated by his (damn) microwave transmissions, against our will or desire, then I'll stop looking at the transmission!"

A touch of philosophy and even a hint about the 'safety' of being inside the coverage area of a microwave 'transmitter' (a concern that would in another ten years turn into a torrent of concern because of the rapid explosion of cell phone transmitter sites).

Largely, the CATJ report was a total analysis of the business plan for MDS, the cost of being a participant (the home style receiving systems were priced as high as $400 - and the MDS operator had to purchase one for each customer home), and the 'weakness' aspect.

What we uncovered was more than a dozen firms, most in the home-workbench class, who routinely manufactured and sold MDS receiving systems for prices as high as $600 to anyone who had the money; these were not MDS customers, these were 'MDS pirates'. Even more on target, in cities such as Phoenix where Motorola maintained a major research and manufacturing facility, CATJ found employee bulletin boards loaded with dozens of schematic diagrams, step by

step instructions telling anyone who cared how to select a handful of parts (from the Motorola 'community parts bin' no less) and then build their own MDS electronics package. The MDS signals were 'in the air' and creative people with a minimum of skills could duplicate the required equipment to 'tap into' the transmissions. Without paying a fee.

Naturally our reporting on this aspect of their business made the small but tenacious MDS entrepreneurial world angry. Very angry. When we listed sources for such devices, published schematics (obtained from the Motorola posting board) and discussed our own field tests of these clandestine gadgets which we bought or borrowed on the open market, their anger escalated to legal threats. Against the magazine.

Looking back at the 24 page feature, it certainly did rip the rug out from beneath the MDS threat. Now, anyone who obtained a copy knew exactly how to sink the MDS ship. Yes, this may have been a cruel thing to do - but these guys were threatening to become serious competitors to cable and it was, well ... 'my duty' to deflate their balloon before it became airborne.

Alas, in my enthusiasm I did step over one legal line in the sand which was careless on my part. In promoting the forthcoming SPTS event, I carelessly slid into the promotional copy this partial sentence:

"a host of skilled people there to teach you all about ... the design and construction of 2.15 GHz (MDS) converter systems... ."

I was about to learn how angry these people *really* were as they planned to haul me into a Federal Court in Oklahoma City just ahead of SPTS, charging "violation of (FCC) Section 605". But that was still two months into the future.

Late in April a man arrived in Oklahoma City to participate in the taping of a segment for Satellite Magazine, to air early in May. His name was Richard Campbell and he was the recently new Director (of) Business Development at Scientific Atlanta (S-A). This monumental edition of Satellite Magazine would be the first traceable history for commercially offered home satellite terminals.

Campbell came to reveal the new corporate wing known as 'Homesat' - one of those, "the name says it all" idioms. Here's the situation as 1979 approaches mid-year.

Yes, there are thousands of people in the process of building home dish systems. Some of these actually function. Most do not; yet. But they would, shortly.

Yes, one small peripheral cable TV supplier (Gardiner

Communications) has announced a commercially available home satellite dish system for around $14,500 - the same price range as cable systems were paying for the same equipment (identical equipment, only the 'name' was changed). Gardiner has made only a few sales as of May, however.

Yes, I had beaten the drum to the point of personal embarrassment in CATJ, written detailed articles for magazines such as TV Guide, Radio Electronics and 8 others, had been exposed on American and Japanese TV with much more to come.

Yes, the FCC had formally announced their plan to eliminate receive terminal licensing and this looked like it would go ahead before the end of he calendar year (although one could never-ever prognosticate FCC action, certainly not one as potentially far-reaching as this).

Yes, the first-ever home satellite dish conference was scheduled, promoted, and already indicating it would be sold out in advance.

And now, we had 'Homesat' from Scientific Atlanta. An analogy. Suppose the technology world created a one man jet-pack that allowed you to zip effortlessly through the air from one spot to another, reliably and within reason, cheaply. Only nobody of substances dared touch the product. And then Rolls Royce came along and announced, "effective next week you can go into any RR dealer and purchase this contraption".

That was the impact and importance of this announcement. Campbell, appearing on Satellite Magazine (and later reported in CATJ for May) May 3rd, said:

"We have created a terminal system (4.5 meter size) and we have identified a market. In 11 western states there are 46,000 farms and ranches of 2,000 acres or larger (many much larger). People who live and work on large ranches are, by in large, separated by many miles from high quality, diversified television reception. They have an identifiable need, and they have the dollars to make this sort of investment."

There was nothing 'cheap' about the Homesat system - $37,000. There was nothing second rate about S-A's imagination to make the system appealing. In the forthcoming 1979 Christmas Catalog for the Dallas based Nieman Marcus store, there on page one in glorious living color, "The gift for the person who has everything - except decent television reception."

Campbell, a Harvard MBA graduate, had approached his new assignment at S-A with the care and detail that only comes from spending months doing exploratory homework.

"There are tax credits which the rancher can take advantage of here.

In today's market, the cost of the terminal is equivalent to 30 head or cattle." And in fact, at state fairs and rancher/farmer trade shows over the coming months, Campbell would learn to dress down to calico shirts and blue jeans to stand alongside his transportable, trailer mounted, 4.5 meter terminal while he explained these benefits to farmers and ranchers.

"I have also learned to stick to equivalent amounts rather than starting off with the dollar amount. In addition to 30 head of cattle, I have worked out how many acres of wheat (usually 2 to 4) or how many 'hundred-weight' of hogs the terminal represents. In fact, sometimes the actual dollar number ($37,000) is not even noticed or mentioned until we have a contract to sign."

S-A saw some problems of course. They were the pioneer supplier of satellite terminals to the cable industry, planned to do the same for the motel folks and the broadcasters as they came on line. Selling terminals to 'private' homes, even if those homes were likely to be isolated ranches too far from town to be hooked up to cable, was going to cause some unpleasant feedback from the cable folks. Another aspect of this - the cable operators were paying a monthly fee to HBO and WTCG and others for access rights to their signals. What about the home terminals?

Homesat had worked out a plan to handle this - they would insist that every home buying a terminal also accept as a part of the $37,000 package an agreement to 'pay' for the channels they received. Yes, it was akin to taking the Boy Scout pledge to be true to God and country because it was on an honor system. But S-A thought this would get it off the hook with the cable folks. Additionally, they offered cable operators the opportunity to become an 'agent' for the Homesat systems - if the cable operator would sell it, install it, license it - the cable operator could retain a 'profit' from the transaction.

I found all of this laudatory but hopelessly unrealistic. But did not say so at the time - happy as I was to have the 'Rolls Royce' of the cable and satellite world in there marching down the same street as I was. I didn't feel lonely anymore!

Later in the year I did express my views about the likelihood that those selling or buying home terminal systems would stand in line to voluntarily pay fees to HBO et al. When I did this, the FCC had just removed the licensing requirement and I foresaw that without that as a guillotine hanging over the head of system sellers, I expected very few to voluntarily offer to pay for anything. Sadly, I was right but that is getting ahead of the story. I also recall rather vividly being verbally

dressed down by S-A's Chairman of the Board, Sid Topol, shortly after my, "ain't nobody gonna pay," statement made the press. We were both attending a cable trade show and he went out of his way to locate me, then work me into a corner of a booth to have his say. It went something like this.

"I used to admire your willingness to plow new ground," he began. "Now I think you are a careless jackass. If you keep on telling people how easy it is to have a home system and how simple it is to avoid paying for satellite TV service, you will ruin what promises to grow into a tidy marketplace. Cut it out."

And he moved away followed by an entourage of yes-men. I would never again receive a Christmas card from S-A. But then, Provo had no mail service so how can I be sure none was posted?

Shortly after taping the Campbell S-A interview for Satellite Magazine, Rick Brown advised me, "The IRS has put it all on paper." I asked, "how much?" and he told me. More than I expected by about 50%, not certain how the penalties would be computed.

"When can we schedule you to Oklahoma City to meet with Kyle (Moore) and Bunk (Dodson)? I'd like to be out of here shortly after June first." I suggested to Rick that he do all of the negotiation with Dodson and Moore, the price I wished for my stock in the publishing company to be exactly equal to the amount of the IRS fees plus his own charges for representing me.

"I don't care how you present this, but you can explain that the amount I am asking is not a profit for me in any way - simply what I consider a fair market value tagged directly to the IRS payment I must make."

I sold out cheaply but you could cut the air with a skill saw. I sat in my office putting the finishing touches on the June issue, two offices away Rick represented me far more skilfully that I might have managed. And with a whole lot less emotion. Around 11AM he came into the office waving a check made out to me and signed by Bunk Dodson in the correct amount. I endorsed the check and Brown shortly left for the airport, check in briefcase, where he would run it through his law office client account, extract his fee and then settle with IRS. Following Brown was a brief visit by Kyle Moore, previously related, during which he assured me we would never meet again. It took me two more days to finish CATJ June, pack my meager collection of parts and pieces into cardboard boxes and head for rural Guthrie.

CATJ for June eliminated my name from the masthead (R.B. Cooper, Editor-in-Chief) but with no time (nor skills) to replace

anything else in that issue my Coop's Comment still ran complete with the same title. CATA was not going to announce my departure any sooner than absolutely necessary. Part of the agreement was that there be no explanation of why I departed. The company line became, "he has left to pursue other, private interests" which most people quickly translated to "home satellite TV."

June's final-Coop issue was loaded with promotion for 'home satellite TV'. On the front cover, Stanford University Professor H. Taylor Howard with what he claimed at the time was his own creation, a home satellite receiver with features very similar to those Steve Richey and Rod Wheeler had displayed at CCOS, 10 months prior. Inside, a blatantly over-hyped promotional editorial report on SPTS backed up by a tear-out registration card to attend.

I had made one error in arranging for the processing of the August-scheduled SPTS registrations. Readers of CATJ were returning the card (with check enclosed) "% CATJ Magazine" which meant office manager Celeste Rule was able to keep tabs on the registrants before handing over to me daily the latest sign-ups. Celeste was simultaneously collecting registrations for the CCOS 79. By early in May, it was evident that SPTS was out pacing CCOS by a sizeable margin. As this was 'Coop's personal show', alarm bells began to ring even before Rick Brown negotiated me out of there. At the same time an entirely different set of registrants were coming to PO Box G, Arcadia, Oklahoma where wife Susan daily picked up the loot. Susan was also taking the brunt of the interest stirred up by the Radio Electronics Magazine series and more originating from a mass mailing of several thousand we had done to each buyer of our 'Home Satellite TV Terminal' booklet. I came home one day late in May, just before Brown's excising of me from CATA/CATJ, to find Susan wearing roller skates in the kitchen. She had also installed a 25 foot coiled cord on our wall mount phone there (this was before the days of hand held cordless extension phones).

"This damned phone rings every few minutes and I'm tired of trying to get anything done around here with so many interruptions. I can get around faster with the skates than walking or running."

Within a week I was home full time to take the load off of her; and not a moment too soon. NBC contacted us. They had noticed a story appearing in *The Wall Street Journal* (April 19) relating S-A's decision to begin selling home dish systems. They had also obtained a copy of my Satellite Magazine show for May 3rd and someplace found copies of CATJ and the Radio Electronics series.

"We want to come out and do a story," they began. I suggested

they hold off until mid-August, scheduling their visit within the 3 day SPTS. At that point I had no idea what their overall plan was, but like CBS, I suspected it was not going to be very supportive of home dishes. I, and the other participants, would have to wait until December 23 and a Tom Snyder pre-holiday look at the Christmas season to witness their final edited work.

In a week they came back to me affirming that is what they would do - attend SPTS, "for all 3 days." Now, that raised my alarm level. Field crews are expensive and "all 3 days" was a very long time to keep them in Oklahoma City. I'd work out why after the fact.

For SPTS I planned to do several things which I had not even attempted during the wild and crazy days of CCOS 78 (the giant uplink extravaganza). First of all, there would be two 'how to do it' books handed out to every attendee. H. Taylor Howard was putting together his work notes that described the home built receiver he represented as his own design. We called this, 'The Howard Terminal Manual', and over the next three years, several thousand would be sold. The second manual was called, 'The Coleman Terminal Manual', and it was ghost written by myself. Both Howard and (Robert) Coleman would have their own SPTS sessions in front of the full 500 attendees.

Howard was the picture of self-confidence, thoroughly enjoying his sudden leap into the spotlight after spending decades buried in obscure research programs under contract to Stanford. He lived on a remote California ranch, delighted in spending idle hours operating a large Caterpillar brand road building machine creating no-purpose trails and roads that led to no place in particular on his Sierra Nevada foothill acreage. Robert Coleman was the 'chalk' to Howard's 'cheese'. Both, of course, had been ham radio operators for decades.

Coleman lived in Travelers Rest, South Carolina, operated a junk yard that pretended it was an second hand auto parts store, and with absolutely no formal training of any kind created on his kitchen table circuits and satellite receiving parts that even Howard had to admit were leading edge stuff.

As a 'junk man' his mind set was "cheap, cheaper and cheapest" and his entire life revolved around digging in somebody's trash heap looking for something he could modify into an item of value. Ten years my senior, I liked him immensely from the day I drove into his pine tree shaded yard with Dana Atchley III to create some videotape of his work.

Robert was pure-southern, perhaps a generation or two too late to have his own Negro slaves but of the same mind set as his ancestors

none the less. He lived in a 'good old boy' world where if he needed something done which was perhaps slightly shady his 'cousin', the local sheriff, would handle it. His friends had names like 'Billy-Bob' and 'Old Yeller' and I'm not talking about his pets.

"This is a surplus dish," he began with Dana's camera rolling. For the benefit of my non-ham audience I asked him to explain 'surplus'.

"Well, you know, somebody didn't want it and I did. It was 'surplus' to their needs and I gave them $10 for it."

"I'd say you got a bargain," fingering the large parabolic shape behind us which stood many feet taller than he and I. Similar, even identical, dishes in the commercial world were selling for many thousands of dollars at that point.

"There wasn't no mount with it," he continued, "so I worked out where it had to point to see Westar, and propped it up against this pine tree."

I knew at this point 99% of the viewers were either rolling on the floor and holding their sides with raucous laughter, or sure they had misheard through his thick southern drawl. He was only warming up.

"This thing here is the fine tuning on the probe," he went on, pointing at a second hand plastic white drinking straw protruding from a hole in a strange circular copper pipe.

"And what does it do?" I asked innocently.

"Well, if the signal drifts and needs to be repeaked, I push on this to make the picture come back."

For twenty memorable and precious minutes Dana's 3/4" deck recorded one of the most unusual insights into microwave technology ever to appear on a television screen. Coleman knew none of the big words, he had adapted some 1950 era terms invented for that decade's ham electronics to suit his description of this amazing collection of surplus parts which - we could all see it on the screen behind him - was somehow intercepting and receiving PBS service from Westar.

"How much money do you think you have invested in this?" I asked at one point.

"Maybe $100," he answered with a sheepish grin. "But that signal generator over there," pointing to a World War Two grey metal contraption covered with knobs and meters, "it cost me $50. I think I paid too much!"

Coleman's pictures were hardly in the same class as mine at home, and even by Taylor Howard's standard, they were not great. But they were satellite pictures and sound, and if you lived in Left Testicle, Wyoming and had no TV at all, you'd find them very acceptable.

Coleman's 'conversion' of a Western Electric 'TD-2' microwave receiver for satellite TV reception was the first and perhaps only 'classic' of this now defunct industry. His SPTS manual ultimately taught thousands world-wide how incredibly uncomplicated satellite reception really could be. Yes, it took some skills but as Coleman had learned them on his own with no tutors to that point, on his kitchen table, it was obvious someone with formal training would breeze through this in perhaps a lazy Sunday afternoon.

What his 'story' did for SPTS is incalculable. His photo in the last-under-Coop June CATJ and the promise that, 'you too can have satellite TV for $100 or less', drove home the message I most needed - this is not nearly as high tech as the professionals were insisting.

To round out the seminar presentations, I had arranged for another California professor, H. Paul Shuch, to be on hand and to conduct ten 'private sessions' over three days in a 70 seat classroom. Shuch was at the opposite end of the spectrum from Coleman. He carried around dog-eared tutorials describing exotic microwave circuits, sold out of his garage small modules he built in spare time for the purpose of receiving the latest NOAA weather satellite images, and was already acting as a technical consultant to Oklahoma City based International Crystal Manufacturing Company (ICM) who would, at SPTS, unveil their own home satellite terminal receiver.

Unlike Coleman, who had never heard the correct terminology for microwave parts and design practices, Shuch was a walking textbook of the latest 'inside gab'. An average person had to communicate with H. Paul while holding a microwave dictionary in one hand and thumbing fast to find a plain-English explanation for Shuch's words with the other hand. Shuch was Taylor Howard's 'secret weapon' and whenever Howard got stuck, he went 70 miles to H. Paul for help. But that was a 'secret' and all three of us agreed to keep it that way.

Oklahoma City Junior College was a pretty modern facility and the 500 seat auditorium as well as many classrooms had plug-in and play jacks installed so that their staff could haul in a TV camera or two and immediately send the event in the room back to a master control room where it would be recorded on videotape.

I knew that a high percentage of those attending were going to be totally lost in the technology within a few hours of start-time. So with some fast talking, I convinced the JC that a room unused for the seminar could be set aside to allow anyone who brought a video recorder to make their own tape copies of the various seminar sessions. The room by careful layout and planning had sufficient bench top space for 110

average size video recorders. In 1979, owning a video recorder was not your average thing to do. But when SPTS went into operation, we somehow had more than 150 video machines crammed into the room, filling not only the bench space but the walkways and floor as well.

What we were offering to the attendees was the opportunity to make their own take-home copies of any seminar session(s) they wished. I stopped counting when we passed 100 machines, initially, and had to go into the room several times to work out the extraordinary scene. What was particularly impressive were the dozens of factory-store fresh cartons which people hauled from Miami, Los Angeles, Honolulu, Bangor and Bogota indicating these machines had been purchased brand new just ahead of SPTS and in many cases had never previously been used.

Alas, I am getting ahead of the time sequence. Another unusual offer was a room where we ran the 20+ hours of tapes which made up the CCOS 78 uplink site production as well as the Robert Coleman, Taylor Howard (whom I visited in April with camera and tape deck) and other tapes relevant to what was being 'taught' at SPTS. Again, we allowed people to 'plug in their own machines' and make copies of what ran. A really aggressive person would go home with more than 50 hours of tape. Needless to add, the local stores that stocked blank video tapes wondered if they had died and gone to tape heaven - we (the group) quickly cleaned all of Oklahoma City out of blank recording tape within the first 24 hours (work it out - over 150 machines times 50 hours maximum.

The same June CATJ rubbed salt in the MDS wound - again, I knew not how serious the MDS anxiety about me had become. I wrote, reference SPTS: "Using some local-to-Oklahoma City area talent, we'll have a session that describes building your own 2.15 GHz converters and antennas."

And the 'rub-it-in-their face' red flag of all time: "Yes, there will sets of plans, schematics and board layouts available."

In retrospect, it was plain to see why the MDS industry, already incensed about the April issue of CATJ, took this as a 'direct attack on the integrity of their service'. Apparently, we were planning to create trained missionaries to go back into the wilderness to put them out of business with 'piracy receivers'. OOPS.

SPTS NUMBER ONE

Properly, SPTS in Oklahoma City had been designated 'SPTS-79' because I knew there would be more. Satellite Private Terminal Seminar / Oklahoma City would prove to be but the leading edge of a thrice-annual show that would by 1982 be taking over entire hotels in Las Vegas and attracting upwards of 10,000 people. I had no way of knowing this, of course, but clearly the hand writing would be very evident by the close of Oklahoma City.

Because we had a full venue in mid-June, the most difficult part for the next two months was advising people, "No, you cannot attend." They begged, pleaded, offered to pay 'twice as much' (and more) if they would be 'allowed in'. The 500 seat auditorium was finite, and while I briefly toyed with using TV cameras to spread the auditorium sessions into a number of 70 seat classrooms, abandoned that after talking out the logistics with the folks at the JC. By mid-July, Susan and her roller skates was telling people - "But, we can take your tentative reservation for SPTS-80 which we plan for February, perhaps in Miami!" In fact there would be three SPSTS-80 events; Miami, San Jose (California) and Houston, each one larger and more complex than those before.

Even before Oklahoma City, I was beginning to be concerned about our 'family move' to a remote Caribbean Island with no telephones and no regular electricity. Not to speak of, no mail delivery. At SPTS OKC I would announce the creation of a new magazine (some things in life are obvious) to be called Coop's Satellite Digest; CSD for short. That meant I would be back in the deadline business once again. And when - if - we actually got to Provo there was the small matter of creating a

place to live on that 2 acres of delightful beach front we were purchasing from Dickie duPont. Normally, when you set out to build a home, you draw up plans, submit them for approval to some governing board, and then ask for bids from local builders. As Provo had no local builders, there was a challenge here. I was already sketching a two-building project - a home and something I was calling 'the annex'; a building with a TV studio, multiple rooms for visiting guests, a full laboratory, and (surprise-surprise) a control room for a TV station. I saw Provo as a totally free market, no rules and regulations (meaning no FCC) and the opportunity to build a TV station to serve the handful of residents living there. Naturally satellite TV would play a part in all of this but I had no concept beyond that obvious assumption.

It was going to be 'difficult' (no - make that 'impossible') to co-ordinate a monthly magazine, thrice-annual trade shows, and the rapidly escalating crescendo of home-dish publicity from a place where there is no ability to call out or phone in. I needed to do some advance planning and until I had a suitable arrangement in place, the Coopers were not moving - anyplace.

SPTS 79 was everything I imagined and much more. The enthusiasm was infectious. Three solid days of sessions greeted those attending, along with an exhibit hall carrying 14 paying exhibitors supplemented by a basketball court-size concrete roof covered with home satellite dishes; some actually working.

But just 48 hours in front of the convening, a federal marshal knocked on my door and served a subpoena. It demanded I appear in a federal court in a few hours time to answer charges that SPTS-79 was going to "violate Section 605 of the Communications Act of 1934." It was the well timed shot across my bow, totally unexpected, by the Oklahoma City MDS operator.

I immediately contacted attorney Rick Brown and asked for advice. "Be truthful, be calm, and if they are asking the court to prohibit you from delivering sessions on MDS technology, respond that the First Amendment to the Constitution guarantees Freedom of Speech and it would be most unusual for a court to prohibit something from being said, before it is said."

He gave me the stock attorney story about 'yelling fire' in a crowded theater.

"Remember, Section 605 does not say you cannot teach or explain how technology such as MDS works; it simply says that you cannot, if you happen to intercept a privileged communications, divulge the content of that communication to a third party."

The MDS industry was counting on their 'common carrier' status, meaning they were transmitting as 'contractors' information (movies) to specific customers 'on request' and when someone who was not their 'customer' intercepted their transmission, well, it was illegal under 605 to 'share' or 'divulge' the content of the transmission with a 'third' (as in any other) party.

It was a very thin wedge but MDS was very angry with me. The seriousness and true intent of their attempt to prevent SPTS was evident when I arrived in a nervous twitter at the Federal Court Building and was immediately blind-sided by a TV camera crew from local channel 5. "What is this all about?" the reporter began. I was not very good at my answers and finally asked them if they would be around when it was over. "I think I can better answer after the hearing than now." I was trying to get out of it gracefully, wishing that Rick Brown was there to handle this for me.

The judge. He was sympathetic to the local MDS operator's concerns and that was plain. He asked me to explain what SPTS was all about, and how we were going to deal with the MDS topic. I was half way through when he stopped me and asked, "Didn't you write that article in TV Guide last fall?" I said yes.

"Is this seminar more about one of those disc things than - what is it called?" he pondered digging through his papers, "MDS?" I said that was true.

To the MDS attorney he directed a question. "You want an injunction to stop Mr. Cooper from holding this seminar because you are afraid of what the seminar might say - is that the essence here?" The attorney said yes and tried to go on. The judge interrupted.

"How is this different from any First Amendment situation? You are asking me to grant an injunction prohibiting Mr. Cooper from revealing your trade secrets before he actually does so?"

The MDS attorney, flown in from out of state, said "yes" that was so, and then tried to explain that if the seminar was held, citing me as the seminar sponsor after the event would be akin to closing the barn door post the horse running away.

The judge was not impressed. "This country has a long, important history of not striking down free speech before there is speech. Mr. Cooper, are you or is anyone there planning to sell equipment that might violate the sanctity of the MDS system?"

I answered, "To the best of my knowledge, no. Certainly I am not and no exhibitors signed up are planning to offer for sale MDS equipment of any kind." I went on to explain that MDS was almost an

afterthought, and only on the schedule because of the intense interest shown in the CATJ April edition. I handed over a copy for the judge to browse.

He took a ten minute recess and we waited. On his return he cut to the quick. "My finding is there is no justification for an injunction dealing with something that might be said at a seminar that has not yet happened. So the request for an injunction is denied. However, I must warn Mr. Cooper that Section 605 is a very difficult section of The Communications Act subject to a wide variety of interpretations. I caution him against allowing any of the seminar speakers to cross over the very thin line between education and application. Case dismissed."

The TV cameras were waiting out side and I made the 6 o'clock news with a totally incomprehensible analysis of what this was all about. You could hardly expect the general news reporter to understand "Section 605," and he did not disappoint. In a moment of careless abandon, I passed two all-entrance passes to the MDS folks and suggested if they were really concerned, they should attend the sessions as my guest. I had no idea where they might find seating!

My first call was to Brown who was waiting with some anticipation. He loved ground breaking cases, and probably could have dragged this hearing out for two days (rather than the two hours it took) just because he was there. The so-called 'common-carrier' status of the MDS operators was in great dispute and Brown would have enjoyed arguing that they were not common carriers and therefore not entitled to 'Section 605' protection in the first place! It would have been fun to observe but with people already arriving, I had no time for such unnecessary frivolity.

Taylor Howard and Robert and Lib Coleman arrived that evening; from opposite coasts. We thought it best to have them in early to rehearse their presentations and of course SPTS was paying for their flight tickets and accommodations. Robert's wife Lib, whom I had met and eaten with in their home in South Carolina, basically took my breath away. The 40 year old mother of four with grand children was an entirely different person out of her kitchen. I decided as she effused and bubbled to the car that Robert had kept her bottled up in Travelers Rest too long.

Some of the firms creating antennas out of parts kits were already there as well, struggling to assemble what in later years would require two men, two hours, in two days with six men. It was all a giant learning curve and the NBC folks were sticking their long lenses into everything going on.

We decided to allow people to sign up as they arrived for the 8 times 90 minute H. Paul Shuch sessions, or alternately, for the regular 500 seat auditorium mixed events. Those who found the decision difficult were given the option of getting tapes of H. Paul or vice-versa and several dozen headed back into Oklahoma City to buy tape machines. Years later I was still hearing locals telling me about "that amazing afternoon when ten people purchased 15 tape machines in an hour's time using credit cards from as far away as Venezuela."

The entire three days rapidly became a blur. I nominated myself to introduce each of the speakers in the main auditorium, started H. Paul's first session and then left him in charge for the balance. Over the following year, we sold around 100 sets of his 12 hour lecture series tapes for essentially what the blank tapes cost us, plus our cost of dubbing.

There were some very unusual people there, not counting the clandestine 'snoops' from possibly several federal agencies who tried to blend in but did a miserable job of being incognito. One in particular was outrageous. He presented his card - it said something like "Director of Special Projects, The Playboy Mansion, Chicago, Illinois." My first inclination when Susan pointed he and his card out to me was, "Bullshit - the guy uses this to get women to take their clothes off in front of him!" He looked and acted the part with more 35mm cameras draped across his chest than you would find in a typical Nikon dealer's store.

Lib Coleman bought his assumed identity hook, line and plunging neckline. Susan: "She immediately draped herself across the registration table, unbuttoned the top three buttons on her blouse, and oozed all over the paperwork!"

I had to admit to a certain fascination for Lib and during a brief lull, I engaged the claimed-to-be from Playboy chap in conversation in front of the reg table. Sure enough, Lib repeated her 'act' right there and was urging the Playboy guy to take her picture. He obliged, perhaps to get her off the table, because frankly in 1979 a 40 year old grandmother seldom made the final cut for Playboy's center page spread, no matter how impressive her attributes.

Lib, like Robert, was a licensed ham radio operator, and had a good grasp of what was happening all around us. That made her bright (in my book), sensuous (how many 40 year olds can make you believe they are Lolita on top of a 6 foot folding table?), and terribly forward. Robert would later confide in me, "We were married when she was 14; all boobs and long hair. She was a knockout and we started having kids immediately." Only in South Carolina.

If the Playboy guy's camera did have film in it, and he did develop it, Lib never got 'the call'. What he was there for, he told me, was to investigate how Playboy might use satellite to reach its audience. He would later send to me a copy of his written report on 'Satellite Technology' to his boss, Hugh Heffner, and it was only then that I decided he was everything he said he was, even if he overplayed the roll around women. Of course within a few years, 'The Playboy Channel' debuted on satellite.

When the time came for the much anticipated 'MDS Session', I went out of my way to explain 'the rules'. In a three minute summary, I explained the attempt by the MDS industry to obtain an injunction to prohibit the session, and then spotting the two free-pass holders in the audience embarrassed them terribly by pointing them out to the assembled throng. Served them right, of course.

The presenters, who had been previously carefully briefed, were terribly nervous. One had cancelled at the last minute, fearing that his ham radio license might be in jeopardy if he spoke. Hams are supposed to know, and respect, the rules of the FCC and this was - in his mind - dangerously close to violating that regulation. Never mind, to take up the slack a fellow rose in the audience and asked if he could speak.

'Why not?' thought I, as long as he understands the rules in play at this session.

His name was David Barker and he was from Phoenix. No surprise that he was an engineer working for Motorola. Further no shock that he was a major source of 'pirate decoders' for MDS there. But the last part was only obvious after his talk.

Off the cuff, David enthralled the crowd, quickly grabbing a piece of chalk and marching to the blackboard where he managed in five minutes to rewrite the technical rules for low-cost, inexpensive MDS converters. His design was so brilliant that muffled 'ooohs' and 'aaahs' were heard in the audience. The technical guy from the MDS side was so busy copying the sketches on the board that even he forgot who he was and at the end of David's extemporaneous presentation rose to his feet and lead the clapping.

In twenty minutes time, Barker had rewritten every rule for MDS electronics, cut maybe 60% of the cost from the product design, and handed the crowd a new circuit which was several times as sensitive and ten times as 'stable' as anything previously put into the marketplace.

Moments later Barker told me, "I came here just for this session. I had no interest in satellites until I arrived but I thought if you were drawing from all over the world, there would be some really first class

MDS designers here. I could not help myself - everything I was hearing was one or two or three year old technology. I just had to jump up and explain how dumb they all were!"

Indeed. From that session, the MDS world changed overnight - from $400 MDS system cost consumer converters, to a $70 range antenna top box. It was all Baker's doing and we had not heard the last from his creative mind - SPTS '80 in San Jose would see him do the same thing all over again, but this time for home satellite receivers. Even the MDS duo sought me out to say 'thank you' for the opportunity to learn - "this has been a real eye opener!"

Shucks, I was merely doing what I did best.

NBC's presence added an element of 'prestige' to the event. Reporter Jack Perkins, visually known to virtually everyone in attendance, made himself involved in many sessions and talked constantly with attendees. At one point we broke away, camera guy and crew in tow, to make the now overdone trip to my rural Guthrie home wher, like CBS, NHK and others before him, we shot footage of my installation. I did my best to learn what his 'approach' or 'angle' would be and he was totally silent on that point, offering only, "It totally depends upon what the FCC does." His reference - whether they eliminated licensing or not, as expected, in the fall sessions.

"How many people have these things, now?" he asked me with the tape rolling.

"Legally, or otherwise?" I shot back.

"Otherwise," he answered.

"A few thousand, perhaps three," was my answer - larger than I believed but believable.

"And why do they have them?"

"For the most part they are TV junkies, people who want access to everything there is to see, even if they should not be watching it...", where the editing room cut me off, because NBC had a editorial statement to make and I had just made it easy for them to do so. We'll return to that in December 1979.

Immediately following SPTS, Robert and Lib Coleman spent two nights at our home. I was anxious to get Robert to commit to a follow-up manual, now having a clear system in mind for future shows. Robert, in turn, had been offered everything from big dollar checks to airplane trips to Japan if he would agree to 'consult' for would-be satellite terminal manufacturers. We both came away from the Oklahoma City meeting clear that at the next SPTS, there would be several dozen new firms all offering satellite equipment. The backyard workshops of

America were obviously alive and well and American ingenuity was just moving into low gear.

Robert, in his mid-50s and still acting the part of the South Carolina hill billy, wanted to know how a cable TV system worked. I had the best part of one still in my down stairs lab and we spent a few hours there while I drew out sketches and explained the business tactics of cable TV.

"What's the first step?" he asked. I explained the franchise process; go to the local city council, request a franchise, and once that was in hand find the money to build the system.

"The franchise - sort of like a license?"

"To print money," I answered.

He smiled. "There's been a couple of guys into see Eb (the local town clerk, as it turned out) asking about one. Maybe I ought to get it?"

I promised I would assist him, if he needed any help. "Don't think I will - Eb's my cousin and the council folks are all friends." Just like the south - in 1979 it was still very much like 1879. A month later he called to tell me, "I got it - that franchise thing." In a few months, Robert Coleman, ex-junk yard auto parts dealer was a member of the cable TV fraternity carrying HBO and a host of satellite signals to sell to his friends and neighbors. And all of this started with a $100 investment in some World War Two surplus microwave equipment he scrounged from some ham radio friends. Wasn't America grand!

It seemed as if every person who attended Oklahoma City told five friends and they all wanted to sign-up for 'the next one'. Susan had been right, it would be Miami and February 1980. The OKC format worked so well I decided to repeat it. Which was?

Build the seminar around one or two brand new, just for the seminar, manuals. Make the manuals $30 each but include them as a part of the registration packet. And then whatever the subject of the new manuals might be, turn that into the big-draw sessions for the gathering. After the seminar, the manuals would be sold through Coop's Satellite Digest along with videotapes of the event's meetings. This guaranteed ongoing income between shows, and built-in an expectation as to what each show would reveal as 'brand new' and doable. The 'trick' was to identify what hot, new technology or procedural process was going to be the 'kicker' that would carry these shows which, for several years, would be scheduled at roughly 4 month intervals at widely scattered geographical locations.

Coop's Satellite Digest (CSD) debuted in October 1979; I had been

out from the magazine deadline gun for only 3 months. The number of firms willing to advertise in the first few issues of CSD were countable on one hand - from the first SPTS only 2 months had passed and while in a year there would be firms standing in line to take any available advertising space, at first it was thin. Not because we were new, or not established. I sold more than 400 subscriptions, purely on speculation, to the folks who attended OKC. And before the debut issue, that number passed 2,500. So, short of advertising because frankly there were almost no real firms in the business in October 1979, we used those pages to promote our own tapes, satellite coverage maps, booklets and manuals.

The first issue (released September 28, 1979).

First, it provided me with an opportunity to 'salute' the true father of geostationary satellites; (to become Sir) Arthur C. Clarke. He, in 1945, had written an obscure article titled 'Extra-Terrestrial Relays' for Britain's *Wireless World* magazine. It attracted modest interest, most labelled it 'science fiction' (for which Clarke was already known and would over the ensuing decades become much better known). I did not know Clarke in 1979, but bold as ever had written him and sent copies of CATJ to his home in Sri Lanka (Ceylon). It turned out he already 'knew' who I was and a lively correspondence exchange followed. In one letter he offered, "I am surprised - no amazed - that you have not landed in jail yet!" His reference was to the tell-it-all articles for which CATJ have become so famous. And then he proceeded to offer 'fatherly advice' about my future writings, remarking, "Senator (name of then prominent US Senator) was recently visiting here and when your name came up, he volunteered the US Government was watching you very closely; *tread carefully.*"

In CSD number one we published, with Arthur's permission, the complete 'Extra-Terrestrial Relay' original article. In it he had (in 1945) forecast with uncanny accuracy the precise technical components and their make-up for what he had calculated would be a 'earth girdling ring of stationary satellites capable of providing direct telecommunications links to essentially every square mile of ground inhabited by man on planet earth'. It was twenty years hence that his vision was proven to be dead-on-target (the launch of the first geostationary satellites which did exactly what he said back in 1945 they had to do to be functional). In 1979, Clarke would shortly be awarded the 'Marconi Award' for his postulation of communication satellites. This long-distance friendship would mature and endure so that in 1983 I would lead a '25 man expeditionary force' to his home town (Columbo, Sri Lanka) which

would, while there, install as gifts to Clarke and a local university three complete super-sized satellite terminal systems (measuring from 15 to 25 feet in diameter). But that, too, is getting ahead of the time line.

Hard on the heels of the initial SPTS, other 'groups' were climbing on the small/home dish evolution. An example reported in CSD.

"Taylor Howard, H. Paul Shuch, John Bacon from S-A's Homesat and Mike Fonicari from DEXCEL participated in a panel on low cost, private (TVRO) terminals during the Western Electronics Convention (WESCON) held in San Francisco in mid-September. WESCON always draws a big crowd because it is a superb new-technology exhibit but its' sessions, where one goes to sit down and learn, are usually sparsely attended. This session broke all records; a room capable of holding 350 when full was somehow stuffed with an estimated 500 as people stood in the aisles and out the doors. Much of the 3 hour-plus session centered on a non-engineering matter; the legality of receiving satellite signals on a private basis. Homesat's Bacon noted that his firm expects users to be legally entitled to receive what they look at, but noted 'we favor deregulation of licensing'. Taylor brought the house down with his offhand observation that Section 605 may end up in the Supreme Court since many feel that 'personal benefit' only occurs when the users receive money or something of tangible value from 'the interception of a transmission'; also noting, some suggest 'as long as these photons are falling on my ground they (the satellite operators) can damn well keep them off my head if they don't want me using them!'"

Howard also observed as the room filled to overflow, "Engineers (which described most everyone in the room) will do things because they are engineers and because they consider a project doable. In short, an engineer, challenged by a concept, will tackle a project for no reason other than the challenge it presents."

CSD's first issue established a standard which would continue for as long as the magazine was published. Nitty-gritty, nuts and bolts detail. This format would be so popular that by the end of year two (September 1981) the first two years would be 'bound' (12 issues per year) in CSD Anthology - Volumes 1 and 2. These were hugely costly 500 page books rivalling the telephone directory for a city the size of Cincinnati in weight and bulk and it was amazing to me that within six months of becoming available all 1,000 sets had been sold at typically $100 per set. Such was the measure of 'new blood' coming into the home satellite dish world - each trade show attracted a thousand plus new people who were just discovering the joys of owning a satel-

lite dish for their home, or, more commonly - detecting a significant new business opportunity in this amazing new world. The 'old timers' (those who had been to SPTS shows previously) quickly educated the newbies that *before* they did anything - obtain copies of Coop's Satellite Digest. With this type of market presale, the Anthologies were an instant hit.

If the October 1979 issue was the prologue, November 1979 was chapter one. The big-bigger-biggest news we had all waited for was now 'a done deal'; the FCC had met on October 18th and after a 25 minute charade during which Commissioners went 'on the record' with their personal mind sets concerning the continuing need for 'licensing and regulation' of small earth terminals, they all said 'yes'. If someone wished to build a satellite receiving system, no license would be required. Just do it!

Of course there were cautions. Building it was step one; using it was step two. The Commissioners, in voting on this matter, took note, as Abbot Washburn enunciated, "We continue to have monetary fines and incarceration options should the users of this service violate our rules." Violate? Well, according to the law if you owned a satellite terminal, before you 'turned it on' and began watching, you must have written permission from one or more satellite programmer sources. And the obvious - if you had permission from - say - CBN, you were 'legally authorized' only to watch CBN. Not HBO, for example.

CSD had a self-protection plan and was urging all terminal owners to obtain 'at least one written authorization' to be watching satellite television; any satellite television.

I wrote: "You can get hung if you get caught watching something you don't have specific permission to view. Carrying that one step further, if some federal person were to knock at your door and ask for entry, you would have at least an opportunity to make sure your kids were not switching to a transponder you are not supposed to be watching.

"But suppose you have a 12 foot dish out there in the yard and their first question is, 'Do you have permission to view satellite services?' I suggest you had better have at least one piece of paper, stuck away in a safe place, which you can trot out on display if required."

But there was the 'human' nature element - people simply would not take the time or make the effort to sit down and write a letter to a programmer requesting in return a letter of viewing permission. Even when we published a 'sample' letter for them to copy and provided all of the addressing information.

It happened that CBN - Christian Broadcasting Network - was, like most programmers, keenly interested in how many 'home dish systems' might be operating. Scott Hessick, CBN's Manager of Satellite Services, and I created a full page "OFFICIAL: Permission to view satellite TV from ... CBN Satellite Services" handsomely frame able document which was published in CSD. It said, in part:

"This certificate issued by Coop's Satellite Digest and by The Christian Broadcasting Network (Inc) grants to a pioneer in the home/private satellite television industry permission to receive the satellite television programming service of The Christian Broadcasting Network ... ."

All the user had to do was (1) clip the page from CSD, (2) fill in his/her name in a blank provided, and, their location, and, (3) stick it on the wall (frame optional). We also requested they do one more step. Cut their mailing label from the CSD envelope, tape or glue it to a postal card, and mail to Hessek. In this way CBN was going to get some 'feel' for the number of home dishes actually out there (the assumption being that essentially everyone did in fact subscribe to and read CSD).

I ended my effort with the comment, "OK - if you are too lazy or encumbered to sit down and write your own letter, *this* will at least 'make you legal' until something does motivate you to obtain the necessary letters of permission to view!"

But as Tom Snyder and Jack Perkins would discuss at length during a December visit to the subject on NBC, "what you actually watched in the privacy of your home was a matter between you and your conscience." We'll see how that sorted, shortly.

Nuts and bolts. Because of the wide acceptance of the twin 'here is how you duplicate my home terminal' SPTS Oklahoma City presentations chaired respectively by Taylor Howard and Robert Coleman, for the next year-plus - virtually every issue of CSD contained a page or two or three of 'Update Information for the (Coleman) (Howard) terminal'. Neither amazing nor surprising - once someone like Coleman (or Howard) divulged their complete schematic drawings and parts lists, people only half as bright as my dynamic duo were working out modifications. Some were in fact twice as bright as C and H; Jan Spisar of Canada was one of these.

Suggested modifications ('improvements?') flooded CSD, sometimes dozens each month.

"Try changing the resistor on the input to the video distribution amplifier to 220 ohms; much better color" was typical.

What was happening here, quite unusual in any new field where proprietary information was guarded at the point of a gun, was a total willingness to 'share' data. Of course it was a two-way street. The half-as-brights lost no time in working out how to telephone Coleman or Howard (or both) and anyone who stuck up their head with an identity that could be traced through telephone information services was quickly inundated by harmless but nettlesome callers.

Spisar was a Czechoslovakia immigrant to Canada during a brief interlude when he and his family could take advantage of internal unrest to slip out of their home country. He brought with him a tenacious curiosity about anything and everything to do with television reception equipment. In Canada, he had been a founding member of a firm to be called Triple Crown Electronics, which because of his circuit-design brilliance, shortly grew into a leading supplier of Canadian-bred cable TV equipment. His youth, spent under the thumb of the Soviet occupiers of his home land, had ingrained in him a subconscious distaste for any and all heavy handed regulatory activity. The Canadian government's 'freeze' on terminal ownership (only allowing the Government through Anik to own them) was an example of his frustration.

Spisar found the challenge of designing lower cost, better functioning home satellite dishes precisely what his mind needed to shake the tedium of redesigning cable TV products for a largely ungrateful industry. He, like dozens of others, freely contributed technical innovations to CSD in its first 12 - 18 months without regard to how these nuances might one day make the difference between a so-so product and one of spectacular performance. It was this unselfish devotion to the creation of an 'industry standard' for low cost, high quality home satellite system performance that made CSD 'the bible' of a young industrial revolution. More importantly, because the latest technology was widely shared through CSD, the industry leapt ahead at breakneck speed. This in turn fuelled my decision to hold new 'industry seminars' at roughly 4 month intervals - an unheard of frequency - as every 120 days or so the industry was reinventing itself with tremendous new improvements in technology and an ever descending spiral for equipment pricing. The day of the '$995 complete terminal for the home' was edging ever closer through 1979 and 1980.

Provo was looking further and further away. Yes, business was spectacular (when 500 people paid $125 each to attend, and 15+ firms paid much more than this each to exhibit, cash flow was not one of my major concerns). But each show magnified the 'home dish terminal'

industry by 2, 5 or ten times. It was now impossible for the Coopers to retain a 'private' telephone number for more than 3 or 4 weeks and CSD was filled month after month with letters from enthusiastic folks spread from Christmas Island (a tiny atoll north-west of Australia in the Indian Ocean) to Hoboken, Santiago (Chile) to the office of the US Ambassador to Sweden in Stockholm. Being the point guy for such an exciting new technology was wearing thin.

I, my family, needed a 'hard plan' or goal. This was getting us nowhere but further and further removed from the idyllic life I envisioned in the tranquil Caribbean. I hired a quality accounting firm in Oklahoma City to do a cash flow pro forma of what we were doing, and to create a document which showed the relative future growth possibilities for (1) the magazine CSD, (2) the booklets and paraphernalia we sold mail order and at shows, and (3) the shows themselves. Oh yes, I was still somehow managing to crank out two brand new one-hour TV shows each month and they continued, courtesy of Ed Taylor, to run on RCA satellite F1 weekly. Was that also a possible 'cash cow'? I didn't really need anyone's assistance in this, but felt it would be more formidable if such a 'study' was done by a name brand accounting firm. Why?

To 'get out of Oklahoma' would require disengaging from some portion, or all portions, of the activities underway. In other words, sell the cash cows that were generating all of this income. And be free of the day to day grind that was attached to them. I spent $5,000 with the accounting firm developing a set of documents which would stand the test of dissection by any potential buyer's competitive accounting firm.

The most impressive thing we were doing, for quick cash, was SPTS. Based upon numbers generated, the accounting guys were forecasting a continuing window of attendee growth that fell between 2,500 and 10,000 attendees at future trade shows over a 3 year future period. The number of exhibitors was similarly projected to grow to between 100 and 200 by 1983. That created a range of thrice-annual shows revenue which ran from $1.2 million to more than $5 million by 1983, ramping up year by year to that point.

Susan and I discussed this and weighed the numbers against the same firm's projections for CSD growth. The magazine as not nearly as impressive, thought they, and their bottom line was a forecast that it would not amount to more than $500,000 gross income by 1983, no matter what else happened.

Of course these were not profit numbers; they were the forecast

amounts we would take in before we paid for the costs of doing all of this. The shows not only generated the largest revenue, they said, but held the potential for the greatest profit margins. CSD would generate the lowest revenue, and, cost the most to produce.

In the page margins I wrote my own notes covering the number of hours per day it took to plan, develop, stage and knockdown from a show. And I did the same thing for CSD and the manual-products. The concept that each new show would produce for initial distribution one or more new-topic 'manuals' ala the Howard and Coleman how-to-do manuals of SPTS Oklahoma City was still with me. For one thing, including a $35 - $50 'manual' as a standard part of a $125/$150 registration fee took some of the edge off the attendance charge. More important, the manual's topic (or topix when more than one was released at a show) provided a focus point for the show proper. For example, at SBOC Houston in November 1980, we would release a manual of my own creation titled, 'Satellite Business Opportunities Manual'.

Now the tricky part. Do we sell-off the shows, the manuals, or CSD? My 'page margin notes' in the accounting firm's report convinced me that if I was interested in becoming Bill Gates before anyone (including me) even knew that name, holding onto the shows was the logical direction. But if I did that, I'd have to also retain CSD because the two were so intertwined as to be inseparable. Unless.

Unless I elected to sell the SPTS show package, in which case CSD could 'stand back' a few miles and be more editorially 'critical' of the shows and all of the activities developing. And more important, I could create a magazine from Provo but lacking the ability to direct dial (or even reach) the Turks & Caicos outer island of Providenciales by telephone, there was no suitable way to operate a show from there.

So the decision. Sell the shows, and work out a side arrangement for the manuals to allow whomever purchased the shows from us to continue to expand that library while we simultaneously continued to sell them through CSD. When all was said and done, the shows were a very attractive money maker and anyone with even a thimble full of common sense could run them quite well. CSD, on the other hand, required everything I knew and had learned from 1952 onward to come out properly each month. I would begin my search for an appropriate buyer during SPTS '80 Miami, if not prior.

Another very quick trip to Provo. My original mentor, Edmund Ewing, had moved back from Oklahoma City and I had a plan that involved bringing him into a small business with me there. But the

big hurdle - which turned out to be no hurdle at all if I lowered my standards for personal safety - was going to be getting into and out of Provo a couple of times per month. The plan sort of evolved - it was not immediately apparent.

After selling the shows, and the house we lived in, off we'd go to Provo; more or less in that sequence. CSD would open a full-time office in Miami-Fort Lauderdale which I would staff with as skilful a self-starting person as possible to locate there. I would do most of my writing on Provo, making side trips as required to cover events happening around North America and the office would oversee the subscriptions, advertising, and coordination with a new printing firm that would be engaged there. But getting into and out of Provo on short notice, frequently, was pivotal to the plan working.

This particular Provo trip highlighted the difficulties. Whereas our first family trip was by way of the Bahamas to Grand Turk and then a jitney flight backwards to Provo with a fellow who looked like his airplane - dirty, dripping oil and held together with bailing wire - I had asked an Oklahoma City travel agent to get me tickets to Grand Turk directly. They arrived in the mail and off I went - to Miami for overnight and then reporting at 8AM to an obscure almost impossible to find registration desk that was in fact a speaker's podium pushed into a corner near the entrance to a men's room. The sign was there - Carib Airlines. Another hastily scrawled announcement said "Be right back."

I waited while the clock was edging ever closer to the scheduled departure time. No human beings. Wandering around nearby similar small airline desks I asked about the unattended facility. Nobody knew anything. With less than 30 minutes until departure time I was in panic mode and located the airport's 'General Information Booth'.

"Carib Airlines?" asked I. A search of the roster.

"They closed down last week," was the glad news.

I waived my confirmed ticket in front of the lady's nose.

"Sorry - but these services serving the outer islands come and go without much notice."

Indeed. So now what? Trek back to Oklahoma City or, over to Bahamas Air and arrange that delightful DC-3 trip again? It was important I get to Provo so off I went to Bahamas Air for yet another fun trip mixed with crates of milk, vegetables, several live pigs and tons of boxed materials that defied description. This was not going to work as an answer to getting in and out of Provo - the flight to Grand Turk was once or twice a week, significantly subject to whether they actually had an operating DC-3 and full load of freight, and by having to go

Miami-Nassau-down the chain of islands to terminate at Grand Turk meant one or more entire day was spent in that leg of the trip. Not to speak of being confined to one or at best two days a week to go down and come back.

TCI's finest. The same grease and oil stained guy with the same dirty Beechcraft held together with bailing wire (and probably chewing gum since every other substance known to man was littering the plane's interior) was at Grand Turk and once again offered to fly me to Provo where Edmund was waiting (without a functional telephone on the island, ham radio was our method of communicating).

I finally got his name; "Ed Hegner." I asked what he did besides waiting for stranded people on Grand Turk who might like to fly to Provo. We were hovering over our destination and looking down the 'runway' which I saw was no more than a badly plowed strip broken up with coral rock outcroppings and littered with 40 gallon fuel containers.

"That's it," he said pointing down.

"That's what?" I responded.

"Provo International. Hang on, some idiot left containers on the west end and we'll have to hop over them before I set us down."

The 'idiot', it would turn out, was a local native named Howard Hamilton who also owned an airplane of similar vintage and condition. Howard believed Hegner was competition and missed no opportunity to keep him from picking up and delivering paying customers. Blocking the runway with oil drums was a friendly if dangerous 'guerrilla action' practiced by both sides that would continue for several years.

The only thing that saved us on landing was the rutted sand that approximated a landing strip. Without the empty containers at the west end, the strip was perhaps 200 to 400 feet 'short' for Hegner's twin Beech. With the oil cans, it was 'full flaps, stomp on the brakes and reverse the props' to get us stopped before running into unplowed rocky ground.

I did not remember it being 'so bad' when I first came down with the family.

"Probably dark then," offered Hegner. "It was no better, you were just too new here to notice!"

I had to like this guy, as unorthodox as he obviously was. I offered to buy him a beer as Edmund arrived in a battered truck to pick me up.

"So, you do fly to Florida from here?" I began, picking up on some conversation he had with a local as we deplaned.

"When it pays," he responded. "Or when I need supplies".

"Where do you go 'in'?" was my next question, as there were entry points at Miami, Fort Lauderdale, West Palm Beach and a host of others. I was trying to put together in my mind the balance between flying with this guy in an airplane that probably would not meet FAA safety requirements and the long, drawn out Bahamas Air routing.

"Who's asking?" he said. I thought I was asking and said so.

"OK, why are you asking?" he demanded.

The problem, as I would slowly work it out with Edmund's coaching; Hegner lacked any certificates for hauling people and freight in and out of the states to the Turks & Caicos. Anyone flying with him had to 'pretend' they were a 'friend' along for the ride and if asked about 'fees' we were coached to respond, "I am kicking in something to share the fuel costs." Setting aside his lack of certificates, there was his planes (he owned two near identical tail-dragger Beechcraft which by 1980 were perhaps 30 years old and very tired). The FAA had inspection routines for engine maintenance and plane safety; Hegner avoided this requirement by flying in to as obscure a Florida airport as possible just as the customs, immigration and FAA guys were locking up for the night. His logic was they were anxious to go home and wouldn't be 'by the book' with him. But because he didn't want to appear to be doing this too often, he changed airports for consecutive trips thereby allowing him to not show up as a 'frequent flier' at any single landing strip.

Now the fun part. Because the United States Government was hot on the trail of drug folks who were using the Bahamas as an intermediate stop, small planes such as his were under special scrutiny. And in fact from time to time a drug laden plane would refuel at Grand Turk or South Caicos and then under cover of night fly into the US. Vice President George Bush (George 'the first') would come to Provo a few years later to emphasize the US concern about such activities. To give his trips the aura of 'anything but druggies' Hegner often loaded on board empty scuba dive containers, dive equipment and so on so he could 'pretend' when asked that as a 'favor' to his friends he had hauled them down to the Turks & Caicos for a diving adventure.

So if one elected to 'fly' with Hegner, it was only after being totally coached in 'who' we were and 'why' we were there. It would not always be this way - by 1983 or so he was leasing top of the line Turbo Prop Beeches that made the full trip in 120 minutes. But in 1980 and for the next two years plus, it was bailing wire and chewing gum, a total subterfuge of who we were and where we lived, and as they said in the

trade - "on a wing and a prayer."

So - "Why are you asking?" really meant, "convince me you are safe to talk to and why I should take your money to fly with me!"

By this point, thanks to blabbermouth Edmund Ewing, all 600 people on Provo knew about 'this crazy American' who was planning to move his family to Provo. And get this - thank you Edmund -'Start a TV station here!' On an island where the only reliable electricity came out of a car, truck or marine battery, the concept that homes would have functional television sets quickly became the butt of local humor.

Hegner apparently decided 'crazy' was OK if it meant he could extract dollars from my wallet. This between-SPTS Miami and SPTS San Jose trip was only a few days duration but it appeared, if I believed in miracles and could or would hurry home to triple my personal life insurance, that the transport problem was ... well, doable. But I had to be careful to locate a life insurance policy that didn't ask questions about hazardous occupations and stunt flying.

"Want to go back with me?" asked the man, the first sign that I had passed the initial plateau of becoming a regular client. I wanted an extra day on Provo but Bahamas Air did not offer that option. So after he said, "name the day and time," I said yes.

As I would quickly learn over the next 12 months, every flight with Hegner was an unique adventure. After you'd done this a few times and thought you had seen everything that was possible to see with 'crazy Ed's aeroflight company', he pulled a brand new one. Going to Florida was far simpler than coming back because comparatively speaking his tail dragger was more 'lightly loaded'. Ninety percent of what he hauled came into Provo and for the most part what went out were people and broken mechanical items; like the transmission out of a D8 tractor or somebody's malfunctioning high frequency radio. About which.

Because there was no working telephone service, several dozen people who needed, on occasion, to talk into the states or elsewhere, had acquired short-wave ham transceivers; combination receivers and transmitters. My first impression when I spotted all of the 'ham radio antennas' on the buildings there was, "Holy cow - this place must have more hams per capita than any other place in the world!" I was wrong. It may have had more ham radio equipment but with the exception of Edmund Ewing (and soon myself) nobody had a license to do what they were doing. Like Hegner's failure to have FAA certification, one could do virtually anything they wished on Provo. Anything? Well,

there was no police presence. No immigration. A token custom's 'honor system'. In fact, the Turks & Caicos Government in 1980, 1981 essentially ignored Provo - it did not exist and they spent almost no time (and even less money) there.

In my inaugural flight I began to piece together the complexity of Ed Hegner. He owned a second hand yard in Boynton Beach (which, it turned out, could have been the set for the 70's TV show 'Sanford and Son'), apparently flew during WW2 for someone's air force (he was not terribly up front about this era of his life). I guessed he might be 50 in 1980 but that would have made him 15 in 1945 (WW2) so either he was older, or not altogether accurate with his WW2 recollections. Both of his planes would have been condemned were they kept at a US airport. For example, there would be the occasion coming back from Florida when a Beech's door would work loose, flop down and then rip off to spiral 7,000 feet into the Ocean as we crossed over the Bahamas. That nobody was 'sucked out' on the same trajectory would be a miracle of his plane packing skills, about which I will return. He admitted to 'setting several down', a euphemism for crashing, but always added, "I'm here, still walking around, still flying." Unless you believed in "your number is up," that gave token comfort.

Provo had either no fuel, no aviation fuel, or a tiny amount with a huge price tag (thank you Mr. Butterfield). Hegner's answer was to leave Provo with only sufficient in the tanks to get us to someplace where he could purchase fuel at a more reasonable cost. Which typically meant one of the Bahamian 'out' islands. Of course he never informed you of this when planning a flight so what should have been 4 to 5 hours to Florida often turned into 6 or 7, after allowing the time to get through Bahamian customs, immigration and graft.

The druggies had changed the complexion of the various out-islands in the Bahamas. They arrived with wads of cash, paid far too much for everything, left behind false promises of returning with more goodies for the badly underpaid government employees who manned the official entry stations and left the natives to generally consider 'whitie' an easy mark. Ed would set down at Georgetown on Great Exuma, taxi to the only fuel pump on the crushed coral strip, and begin to haggle for the lowest price. The posted price meant nothing of course. Nor was there any certainty the strip would even have fuel available. On many occasions we limped on 'fumes' into a second (or third) choice strip after landing and finding the pump was dry at the first choice(s). Radio 'ahead' to ask if they had fuel? If the out-island strips had radios, they seldom were functional - which was also true

of Hegner's electronics. Of course flying from the Turks & Caicos Islands to The Bahamas was an 'international' trip and by everyone's law, we were required to deplane, unload the plane, haul everything to the local customs/immigration/graft-taking guy and submit to a tedious routine while Hegner was outside bartering for petrol. We would then repeat the exercise upon landing in Florida. Graft. Everyone at these crushed coral strips knew Hegner. They knew he landed for fuel, and only fuel, although in a moment of desperation one or more of his passengers might actually lower their food standards enough to order a burger or bowl of conch chowder. So forcing us out of the plane (a safety measure in case the fuel spilled and the plane exploded), with all of our baggage and paperwork, was mostly an exercise in graft taking. For $10 you could leave your luggage in the plane, for $20 you could avoid the immigration guy totally while standing a safe distance away from the Hegner-torch machine. For $50 you could get food and then have sex while waiting for the plane to refuel; often the same 'lady' fixed you a burger and then stripped down under a palm tree. Ed called these 'rest stops' but anyone spending $50 usually felt anything but rested.

Yes, there was a 'sense of adventure' in all of this. It was easy to see why people who lived in this Caribbean backwater area quickly became tainted with the favorite saying of the entire culture; "No problem, mon!"

Standing on the ground at Fort Lauderdale Exec airport, Hegner asked me to follow him out of customs. We walked across the tarmac, through some hangers and into a corner hole-in-the wall office.

"Like it?" he asked. I had no idea what my answer should be.

"You can sublet from me, here. You'll need a place to store stuff to be carried down to Provo and when you move your office here - what was you said you did? - publish some sort of magazine? Well, I can add a partition here, cut a door there," pointing his well tarnished hand, "and you'll be handy to getting in and out of the islands."

This 'whitie' (me) was obviously a pigeon, perhaps a cow, to be 'milked' for every possible dollar. On the other hand, nothing he as saying sounded unreasonable. I would return to Oklahoma City at least now certain there was a way - perhaps a dangerous way but a way none the less - to move myself and my family to Provo. And publish CSD from Provo.

Now to find a buyer for the SPTS shows. Actually, it was a 'seller's market' because every day of the week brought to my telephone, mailbox or doorstep someone who had money to invest in this exciting

new arena of American business. With the assistance of the Oklahoma City accounting firm, I had settled on a range of numbers within which would be the correct, best price for the shows. Their advice to me was, "sit on it another year; with the attendance and exhibitor numbers climbing so dramatically, you can sell it for twice, three times as much then." I did not follow their suggestion; a promise is a promise. And Susan and the kids were still 'packed' and ready to leave Oklahoma.

"The next guy who comes through that door, with enough money in his pocket, is our man," I said to Susan.

Rick Schneringer. In his 60s, a Texan, trying to work out from beneath a small subdivision that had gone awry near Austin. He arrived at our door, we checked him out and decided he was 'perfect' to own and operate the shows. Sometimes first impressions are wrong.

We made Rick feel at home, moved him for a couple of days into a spare bedroom and suggested he stand around and watch. By the third day he was answering our constantly ringing telephone, helping Susan process the mail and standing over Gary Willhoite's shoulder as we created edited videotapes for presentation in Miami. He left to return to Texas totally convinced 'this was the home-run, family business' he and wife Gloria had spent nearly a lifetime pursuing but never quite catching.

Cable TV in the interim was in a quandary. Although CATJ had changed content and direction with my departure, and CCOS 79 was at best a 'family gathering' of (now) old friends, CATJ still had the subscribers that had migrated to it when I was editor. Steve Birkill was part of the reason - his 'Experimental Earth Terminals' column filled an important void. So I offered him dollars to create a second set of information for CSD.

Steve was very conscious that it was I who 'discovered' him, it was I who arranged his initial visit to America, and it was I who would make him memorable well into the future. So he began to contribute, perhaps against the grain of his verbal agreement with CATJ, to CSD as well. What I promised Steve as an inducement was a second trip to America, and for a future SPTS, his very own 'Show Manual' where he and he alone would be the featured draw of an industry conference. The procedure was simple enough - the individual chosen to 'author' a SPTS headliner written manual did some portion of the work, we did the balance, created the publication, and we shared the profits. The show guaranteed an initial 'sale' equal to the number of people who attended and who received a manual as a part of their registration fee. Following the show, CSD would continue to market the manual for a

year or two - as long as a market existed. The 'author' got a piece of the dollars received for each manual distributed.

People like Robert Coleman wrote almost none of the content - it was simply beyond their capabilities. People like Birkill, an accomplished writer, did most of the work. My task was to determine which author was about to be 'hot' and then elect their manual for distribution as a part of the 'theme' of a SPTS show. Every second or third show I interjected a manual of my own creation just to keep my own cash flow hopping.

SPTS Miami (February 1980) would feature a manual largely written by Clyde Washburn, a qualified microwave engineer living near Rochester, New York. Clyde had studied carefully all of the Coleman and Howard circuits and correctly came to the conclusion that while each had unique, first-time, design properties, neither was exactly what a typical non-technical consumer would require. So he sat down and designed a receiver which would become the original 'consumer friendly' does-it-all home receiver. It was the Richey/Birkill/Wheeler design of mid-1979 updated using the very latest microwave component parts gently massaged by some exceptionally original engineering. What this did for Washburn is guarantee that each of the nearly 1,000 attendees at Miami would be 'presold' on the virtues of his receiver, which he planned to introduce there. Needless to point out, a manufactured version of his receiver was a preordained 'best seller'.

Prior to Miami, a short-lived NBC television program hosted by Tom Snyder visited the subject of home dish systems. The date was December 23, 1979 and I happened to be spending Christmas with Susan's family in Napa, California as it ran. Back during SPTS Oklahoma City, NBC had spent nearly four complete days hanging out at the initial satellite show shooting tape and asking sometimes embarrassing questions of attendees. Jack Perkins, their field reporter, was a perfect choice for the assignment. What he did in a piece that took nearly five minutes to air to perhaps 25,000,000 American homes was to telescope everything of importance into a humorous look at this still-very-young new industry. Perkins and his field producer had a keen eye for what was important and they found a story that ran like this.

Home satellite dishes 'were real' and if a person knew where to look, available to purchase. One of the first places he looked was Nieman-Marcus, a Texas high-end 'department store' that in comparison makes Macy's look like Walmart. N-M was featuring a Scientific Atlanta 4.5 meter, $37,000 home dish system on page one of their

1979 'Christmas Catalog' and Perkins attended ,with camera rolling, the Nieman-Marcus unveiling of that year's special catalog. Then Perkins found a ranch family in New Mexico which had been an early customer of Scientific Atlanta who, through their satellite terminal, suddenly were able to watch (for the first time) "Our President, Jimmy Carter, and Sesame Street" (from PBS). He also wandered around the Oklahoma City SPTS, caught people attending talking about the parts that made up a home dish system, and he came to the conclusion that, "If you know where to look and what to buy, and are willing to do some of the assembly work yourself, you could have one of these for much less - say $4,000."

Taylor Howard at SPTS: "Our problem is that the law that oversees this sort of activity was written in 1934, long before even Arthur C. Clarke would forecast geostationary satellites. The law has not caught up with the reality of the technology."

Perkins then cut to a non-identified home, "on the east coast of the United States," where a 4 meter dish was installed. There, we saw reception from HBO, C-SPAN, SIN (Spanish International Network), CBC Canada and much more. That home, by the way, was in Richmond (Virginia) and there lived Patricia and Andrew Hatfield, owners of Avcom, Inc.; a pioneer manufacturer (and SPTS Oklahoma City exhibitor) of $2,995 satellite receivers. Perkins did not identify who they were or where they were, noting, "this home has no legal permission to be viewing these services."

From here he moved to a spokesman for the FCC, Sheldon Reynolds, who said very plainly, "we have discontinued the mandatory need for licensing of earth terminals and if people want to watch something they should not be watching, it is up to us or someone else to catch them doing it." His reference was to the October FCC decision to stop mandatory terminal licensing.

His statement ("watching something they should not be watching...") set us up for the climax of the piece.

Perkins: "So Tom, this is the ultimate Christmas gift of 1979, a fitting ending to this decade when - we are told - our entire lives revolved around our access to a variety of television programming. This is the ultimate Christmas gift for someone who has it all - save a satellite terminal. All you need is $37,000 or so and you too can pirate those TV programs out of the sky in the comfort and safety of your own home."

Snyder: "That is the gee-whiz gift of the year Jack. But what happens if too many of these are sold, and the programmers begin to worry

about the pirates who are watching their signals and then scramble their signals?"

Perkins: "We asked that question of those hobbyists out in Oklahoma City and they told us, 'that would be great. Any scrambling they can create, we can unscramble. What a wonderful challenge that would be!'"

No other television report, including my initial interview appearing on Walter Cronkite's much higher rated CBS Evening News, did as much for the public visibility of home dish systems. Perkins, whatever his motivation, managed in just under 5 minutes to say everything that should be reported about our new, infant industry. Perhaps most important, by repeatedly mentioning the Scientific Atlanta $37,000 Homesat system price tag, he left open a tremendous business opportunity for people to become pioneer 'installing dealers' for home dish systems that were for the balance of 1980 largely stuck in the region of $10,000. Anyone who saw and remembered the $37,000 'number' very clearly believed that a $10,000 system was a bargain!

Miami SPTS February 1980. A segue to the post-show proof: 'We had arrived'. One of the new-to-SPTS exhibitors was a firm calling itself H and R Communications out of Arkansas. It would be uncanny how many of the early industry-leading-firms were from Arkansas, a most unlikely location for high technology equipment. On the closing day of the show, I was invited to their hotel suit for a drink and wind-down discussion. More than 1,000 people had registered, nearly double those attending Oklahoma City. Thirty minutes into the jovial discussion, the owner of the brand new firm hauled several large bank cash sacks out of his bedroom and emptied them on the motel's coffee table.

"Now the fun begins," he promised. "Here, help me count this!"

Three hours later, and a couple of bottles of Jim Beam consumed, we came to the unmistakable conclusion that sitting on the table in poorly stacked piles rested $251,000 dollars plus change. A quarter of a million! These guys who could not even spell satellite before the show were sitting on a small fortune which represented the cash they had taken in from show goers - folks who had seen their products (a satellite antenna and a receiver), of which only one (prototype) of each existed in the entire world. And the show goers had been so excited by what they saw that before leaving Miami they had made 'deposits against orders' totalling this unwieldy sum of money. The amazing thing - it represented less than a third of their total sales provided - and this was a very big provided - they could somehow

work out how to actually produce (and deliver) the products which they displayed in sample form during the show!

Miami was a show of great contrasts. Because it was in Miami, a sizeable contingent arrived from the Caribbean, Central and South America. The American satellites were not supposed to 'reach' much further than Miami but some optimistic chasers of live American TV were going to give it a try anyhow. Some had read my Radio Electronic series, heard of the CBS and NBC coverage of our budding industry, and arrived 'ready to do business'. One attendee took me aside and displayed a US$1,000,000 'letter of credit' from his bank; it said he could spend up to that amount buying equipment at SPTS and the bank would honor the invoices! They also arrived from Australia, Africa and more than 100 registered from Canada. Rick Schneringer, our potential buyer from Texas, paid his own way to be there and then Susan put him to work handing out registration packets and reams of material to the ultimately 924 who paid to be in attendance; it was baptism under fire.

CSD reported:

"They came to discover whether the American bred and American nurtured low-cost satellite terminal revolution could be 'exported' to their country. They came from professional engineering firms and universities. Not all were there to learn about receiving American television: One attendee representing an upper-midwestern power grid co-operative was on hand to investigate how satellite links might be employed to control peak loads and switching systems.

"Taylor Howard brought with him a prototype of his ever-evolving home designed receiver which Robert Coleman now had an active part in developing. An Australian offered Howard more than $100,000 in up front money for the rights to manufacture the receiver (in Hong Kong, no less); Taylor declined, for the moment.

"The cable TV suppliers, such as Scientific-Atlanta, Microwave Associates, Microdyne et al, were on hand not to display but to observe. They could not help but notice the huge amounts of cash money being passed over the table top displays and when I mentioned to one that I believed the total business 'written' at the show was already in excess of $12,000,000, there was stunned, dead silence.

"One antenna supplier left the show sitting on an order for 1,000 antennas; one order! One LNA supplier wrote hard orders and pocketed money for over $100,000 in amplifier devices. A receiver supplier with only one prototype on hand (not for sale!) turned down cash money from off-shore buyers equal to his asking price for ten of the

receivers. He needed the prototype to be able to go back home and use it as a 'model' for those he would now have to build in quantity to fill the orders he wrote."

Perhaps the biggest message from SPTS Miami was the appearance, in their hundreds, of people who already had a business back home - and who saw adding a line of home dish systems to that business as a natural fit for whatever they already did. These were people with money in their pocket, walking around searching for the right mix of antenna, receiver, amplifier and parts to allow them to order in 25 or so complete systems a month. They were all of the same mind - "if I can get the product, I can sell it in my home town/county. Fast!"

Reality time. "25 or so complete systems a month" was not on. H & R with a quarter million in US greenbacks piled on the motel coffee table was representative. They had somehow managed to get together one Arkansas built dish antenna and with the assistance of Robert Coleman as a consultant, a so-so receiver of questionable performance. One of each. That pile of hundred and fifty dollar bills on the coffee table represented 25 - 50% 'down payment' they accepted from people that added up to around $750,000 in orders. Divide by $3,000 per system order and - whoops. 250 complete systems. More than twice what the entire cable TV supplier industry was at the time turning out in facilities that made their Pocahontas, Arkansas shop look like an outdoor toilet. In fact, their facility in Pocahontas had an outdoor (outhouse) toilet!

If you did an honest analysis of the manufacturing capacity for the sum of every firm displaying at SPTS Miami, maybe - maybe that group could somehow manage to turn out 100 systems per month. But not this month and not next month. Perhaps not for six months because it would take them that long to work out how to graduate from one prototype to a real manufacturing process.

A sham? Yes. A charade? Yes. A group of 1,000 people hyped by the excitement of their first hands-on, touchy-feely exposure to small dish satellite TV? Unfortunately - yes. And I only made it worse with my special brand of showmanship.

Conscious that we had a not-small group of Caribbean, Central and South Americans attending, I had scheduled a Spanish language session to be taught by one Bob Behar for the second full day. Behar would become one of the leading creators of not-small 'home dish systems' in the world very shortly. His Miami based business was a sideline; he was a full-time employee for local Miami TV station WTVJ with engineering responsibilities. He was also a member of a Cuban family that

had immigrated from their home island shortly after Castro took over. And his family was Jewish - remember that mundane fact a hundred pages or so into the future.

Now, in addition to the American (Westar and Satcom) and Canadian (Anik) satellites serving North America, there was also a small number of Intelsat or international satellites hovering above the equator linking such diverse points as Buenos Aires, Sao Paulo, London and New York. The Intelsat birds covered such large geographic areas that their 'footprints' or signal levels in any one location were very weak. Everything in any textbook one read at the time painfully explained the need for 11, 13, and 18 meter size antennas to receive signals from these powerless satellites. 11 meters is 36 feet, 18 is 59 feet. Not your typical backyard antenna!

The largest antenna we had at Miami was 4.8 meter and most were 4 meter size. I thought it might be amusing if we pointed one of these antennas, connected to appropriate home-style receivers, at one of these satellites. Just to see what might (not) happen. So on the afternoon of February 6, during an unusual-for-Miami cold snap, I and a handful of people fortified with cups of coffee and a case of local beer proceeded to do just that. For the first hour of fruitless experimentation, there on the cordoned off parking lot of the Miami Bayfront Auditorium (which we had rented for the show), we pushed and shoved on dishes held in place with temporary sand bags, changed antenna parts, measured and remeasured our 'angles' to verify we were pointing the dish at that tiny speck in the sky where Intelsat was reported to be.

Dusk fell and it grew cold. Very cold, fast. Bob Behar cranked up a portable generator and we now had lights. And a new case or beer or two. As the late afternoon teaching sessions ended and the exhibit hall area closed for the night, the small group of people helping in this grand experiment actually grew, even with near-freezing temperatures. By 7PM, more than 100 people. The eerily floodlit antennas, the makeshift tables loaded with receiving equipment, and the growing crowd first attracted Miami's finest; the police. Then it attracted a TV camera crew and some newspaper guys.

Around 8 o'clock somebody thought they saw a hint of signal on one of the Sony monitors sitting on the makeshift table. The crowd came alive. So too did a second group with another display antenna. "If you can find Intelsat, let's see if our antenna can do that too!" Nothing speeds up a horse race like competition.

Not that anyone could even work out what the sparklie-laden

image on the screen might be; we all knew it was television, but no more. Thirty minutes of anxious hands - Andy Hatfield removed the top from his Avcom receiver and began adjusting internal controls. A picture locked on the screen. People playing soccer! Not a good picture, but at least we now had a real image.

Thirty more minutes. Now H. Paul Shuch had run into his indoor show booth and ripped out his one and only display receiver of his own design. Bob Behar, not to be outdone did the same from his AB Electronics booth. By now two antennas had found the elusive signal from an unknown source and with each passing few minutes the image slowly, gradually, became more distinct as skilled hands fine tuned the respective receiver internal adjustments. By 9PM the crowd had grown to more than 200 people, perhaps only half of them attendees at SPTS - the rest idle curious walking the streets of Miami on a cold night.

9.30PM. We now had a totally watchable picture and sound; quickly identified as Portuguese by someone in the crowd. A search of available reference materials; Portuguese had to be from Brazil but there was no such service known to be on satellite. Between 9.30 and 10PM excerpts from a classic Hollywood movie ('The Old Man and the Sea') dubbed in Portuguese. The crowd was not getting smaller - it was growing! Then a 10PM Miami time the mysterious station ran several commercials and flashed on the screen for all to see, 'Rede Globo' from Rio de Janeiro.

TV cameras rolled, still cameras snapped the on screen identification, and a rumble of jubilation swept through those gathered. "To the best of anyone's knowledge," I explained to the patient TV newsman who had his camera recording the event, "nobody has ever previously received an Intelsat class of signal on a small, home style dish antenna. This is a first!"

Well it was not climbing Mount Everest or Columbus discovering America but 'Rede Globo' on a 'small antenna' in the Bayfront Auditorium parking lot was sufficient to turn the remaining two days of SPTS Miami into a three-ring circus. Behar was a cagey marketing guy and when the full crowd of nearly 1,000 returned on the morning of the 7th, he had run cables during the night so that 'Rede Globo' was on public display in his exhibit hall booth. And he made equally sure it was 'piped' into the seminar lecture room where he held his Spanish language, 'This is what it is all about and how it works', seminar.

So it was not any real post-Miami wonder that as a group something approaching $12,000,000 in orders were written. Even Susan

and I ran out of books, tapes and our own materials to sell on the spot. Moreover, when the 'spies' from the cable supplier industry wandered around, they were totally overwhelmed by the spirit, the huge enthusiasm and the obvious business being transacted. It was here, in Miami, that Scientific Atlanta worked out they were in big-big trouble with their $37,000 'home style terminals. They took the Nieman-Marcus package system off the market within a week.

Others were in trouble as well. RCA had launched their 'reserve' satellite F3 back on December 6th from Cape Kennedy. The launch had been textbook perfect, the satellite spun around the earth in two quick trips and then a command was sent to fire onboard rockets which were intended to send it to a resting position above the equator. RCA badly needed a third satellite with the wildfire growth of new cable programmers.

F3 was never heard from again. It simply vanished and even the US government spooks operating NORAD (the North American [radar] Defense Command) world-wide monitoring service that claimed to be able to catalog and locate anything bigger than a pipe wrench flying around in space could not find it. Poof, an object the size of a 40 passenger bus evaportated. $70,000,000 gone.

In Miami, our show 'headliner' Clyde Washburn with his incredibly advanced 'Washburn Receiver' was having major problems. Clyde was a modern day version of that Idaho born introvert Philo Farnsworth who almost single handedly invented modern, electronic television in a San Francisco loft during the 1926-1929 era. A perfectionist, one who left nothing to chance.

His years-ahead receiver design was destined to be the runaway hit of Miami. At $2,995 a pop, people arrived carrying envelopes stuffed with $100 bills anxious, and presold, on taking one home.

Only the one he had - the only one - did not work. Day one - "Something happened to it while it was travelling to Miami from Rochester." Day two - "Something is different here in Miami - the satellite signals are not the same as in Rochester." Day three - "I'll take your name and address and contact you when I get this working. No, keep your $3,000 - for now."

Clyde would overcome his humiliating Miami experience and within a year his 'Washburn' would be everything he said it was in February 1980. But for the moment, he was up a satellite dish without a picture.

Susan, the children and I abandoned Miami for another visit to Provo in the Turks & Caicos. We were becoming increasingly concerned

that 'this home dish thing' was providing serious competition to our being able to move to a tropical isle. With the initial beach front property paid for, I spent our ten days there becoming acquainted with the ex-patriots living (many would correct me and say, 'subsisting') there, and began arrangements to have our home built. During this visit A.V. (Art) Butterfield and I became friends.

Butterfield was a Provo native who came from the sister island North Caicos. After 15 years working in the American Merchant Marine travelling the globe and socking away his pay checks for a return to his home country, he was without question the most influential person in the Caicos Islands. With the bonus of being 'native' and having both money to invest and the common sense of a skilled North American businessman, he had been quick to grasp the next step in the development of this island. Step one for Art had been to arrange to be the 'exclusive distributor' of fuel (Shell products) there; the only fuel available. Next he was planning to open a real grocery store.

Common sense told Art that as development happened, natives would switch from subsidence farming and fishing to day labor jobs with pay checks. Lacking the time to farm and fish, they would then need to purchase food and commodities which previously they raised themselves or traded for on a barter system. He would turn their $2 per hour pay checks into $2 a can Dinty Moore beef stew at his new store. The Butterfield family would play a major role in my assimilation of island culture for the next twenty years and I would make it possible for him to realize several dreams he held dear, including the creation of his own church with an affiliated radio station.

But that is, as should be obvious, ahead of the story.

Back home in Oklahoma, with the benefit of spending time on Provo with no minute by minute pressures of the burgeoning home dish industry to infiltrate my mind, it was time to work out how this industry was going to survive. With so much interest and sales activity happening in Miami, I instinctively realized that unless this ragtag group of Arkansas freebooters could be brought up to speed, and quickly, the entire industry would collapse under the weight of its own hype. We, somehow, had to begin delivering real product in sizeable quantities. Fast.

Even before we left Miami there was intense pressure from attendees, especially the guys offering products for sale, to 'announce when and where the 'next SPTS' would be held'. We had now been in Oklahoma, and Florida; logic suggested the next be in California. I had some new concepts I wished to try there - in Oklahoma the housing

situation was a challenge and we ended up using more than a dozen motels. In Miami, being downtown on the water, most attendees were scattered through three times that number of facilities. In California, I wanted to locate one facility large enough to house the expected crowd, on premise. My first plan was to do this right at the end of June but every facility I talked with was complaining about the timing. One suggested, "As we are primarily a businessman's facility, why not shift to the July 4th weekend when we are normally very low in occupants?"

Bingo. I should have worked that out on my own! A holiday weekend, right in the heart of the Silicon Valley? San Jose! Several birds with one stone - 500 rooms to ourselves (I booked them all), within easy drive distance for thousands of guys and gals who worked in similar industries allowing the 'locals' to attend for one day or all three by hopping onto the nearest freeway entrance ramp. The meeting rooms were a tad small for the expected crowds and the exhibitors - well, they would be spread around a giant swimming pool in ground floor rooms effectively giving each his own private and self contained facility. Those on a tight budget would combine their lodging requirements with their exhibit space.

And the new idea. The facility had its own interconnected MATV or master antenna television distribution system. With their co-operation, we would arrive with around 2,000 pounds of video equipment and tapping into this prewired system convert two or three 'TV channels' to our own use. From a production room, new SPTS employee Gary Willhoite would, to a printed schedule, run videotapes showing the content of the original Oklahoma City and subsequent Miami sessions. And we would encourage attendees to bring their own video recorders to make tapes to take home of the more than 40 hours of taped material by plugging into the motel's system in the privacy of their rooms. Moreover, while we were videotaping the San Jose sessions, we would send this live coverage throughout the motel's rooms as well. Up to 60 hours of prime material just for being there. Such a deal.

Now, the primary thrust; getting this 'industry' into something better than one-at-a-time manufacturing. The three key elements of a home dish system remained the same; the antenna, the antenna amplifier, and the receiver. None of these could be purchased at Radio Shack (although it would be no surprise when Radio Shack did begin to offer 'complete systems' within 24 months).

Antennas. Here the solution was relatively simple. They were/are 'mechanical' and nothing in or about them presented any logistic challenges, with one exception. Shipping the damned things once

manufactured. A 4 meter dish if built as a single part was huge: +/- 14 feet across, in all directions as it is a circle. One solution was to build the circle in 'pie-pieces', each slightly concave but more flat than shaped. Now the pieces could be stacked one atop the other for shipping. This format fit lower cost aluminum and steel constructed antennas. A new firm, barely out of Arkansas (Poplar Bluff, Missouri) called ADM, was taking this approach and within six months their production capability would climb to more than 100 antennas per month. Within a year, 500 a month. Within two years, 3,000 monthly. Yes, there would a great deal of (profit) money in antennas.

Another approach was to manufacture the antenna as a one piece fiberglass 'chunk' and then using a skill saw, cut it into 2 or 4 segments for shipping. This unfortunately destroyed the close tolerance (1/16th inch) 'dimensional accuracy' of the antenna and depended upon more than a small amount of reassemble skills at the final destination. H & R's Randall Odom liked this approach because his skills came from the Arkansas fiberglass boat building industry. He understood the medium and could locate low-wage-per-hour unemployed Arkansans willing to stand up to their armpits in fiberglass resins and shavings all day long to do the work. An amusing note. Odom had attended SPTS Oklahoma City, met Robert Coleman, and in casual conversation discovered Coleman had a number of 10, 12 and 14 foot 'surplus dishes' resting in his backyard. Odom's style was to 'copy' and all he required to make his own 'master mold' was a dish. So he and some helpers drove to South Carolina where with a pickup truck of parts they proceeded to 'copy' one of Robert's surplus class dishes. It is akin to cloning - find an original, lay in the fiberglass sheets and resins, let the mixtures dry and then 'peel out' (or 'off') the new fiberglass copy of the original. It was this clone which Randall then drove back to Arkansas to use as a 'master mold' for his first antenna that he would truck down to Miami for show and tell (leading to the $251,000 in cash on their hotel coffee table).

Others learned of this 'quick trick' and because antennas were in fact so difficult (read: expensive and a pain in the butt) to ship over distance, the practice spread like a prairie grass fire. One dynamic duo so enthralled with being 'in the satellite business' would follow this technique to make their own dish which they brought to San Jose in July. One problem.

Fiberglass by itself has no 'reflective' qualities. Microwave signals don't 'squirt' from it to the antenna's 'feed' system. They bore right through. This entrepreneurial pair figured a parabolic reflector was a

parabolic reflector - having absolutely no experience in radio or electronics.

It looked good, but produced zero signal. None, when tested in San Jose for the first time. They sought out advice, quietly, because they looked to be heading down the same trail as Clyde Washburn in Miami.

"Tell me about the metallic content," suggested their willing advisor.

"What metal content? This is fiberglass!"

"No, I mean what did you use within the fiberglass laminations for a metallic surface - to catch and refocus the microwave signals?"

You guessed it. No metallic particles (most used a fine metallic dust mixed into the resin layers, making the dish reflective to microwave signals). At the close of the (San Jose) show a sign had been posted on the 'dish': BIRDBATH for sale. The pair never returned to a SPTS but they would not be missed. Hundreds more would be bitten by the satellite bug and jump into the young industry with all appendages flying.

There was another antenna option, one that begged attention. Way back in the CATJ days I had visited with Bisbee, Arizona's Oliver Swan who became a pivotal center of attraction at CCOS 77, 78 and 79. Oliver began designing unusual antennas in the 1950s while living near Stockton, California. There he created something the world would later call the 'Swan Logi' which in technical talk indicated it was a cross between a 'Yagi' design antenna and a 'Log' design antenna. In that era, home TV antennas designed to receive multiple channels of terrestrial television were at best functional on one TV channel at a time, with lesser (sometimes no) performance on other channels. So if you lived in Stockton, for example, and wished to receive channels 2, 4, 5, 7, and 9 from San Francisco you selected a terrestrial rooftop TV antenna that worked best on *one* of these channels but with decreasing sensitivity on the others.

Oliver's 'logi' corrected that flaw. Unfortunately, Oliver had no head for business subtleties such as patents and in short order his design was being copied by the big antenna manufacturers and sold in the millions.

"Never mind," Oliver would tell me, "there is always the next invention." In Stockton his local brand was the best seller and for Oliver, that was enough.

Two decades later, living now in the wilds of southern Arizona, Oliver had taken his brand of creativity towards designing and building extremely low cost cable television systems; some with as few as ten subscribers. And wonder of wonder, each one of his several dozen

'mini-systems' was turning a profit, albeit modest.

It was this sort of inspiration that set him to designing a low-cost satellite antenna in the middle of 1978. By early in 1979, when Dana Atchley III and I revisited him for some new TV production shooting, he had it working; a 'surprise for Coop', as he called it.

First impression. A giant bedspring laid up on its side and canted at an angle towards the southern skies. The framework for Oliver's version was second (or third) hand galvanized pipe - the kind you would use to plumb a house or barn. The area suspended between the framework looked like a giant spider's nest - tens of wooden and metal 'struts' all pointing towards a center point overlaid with metallic window screening.

"Less than $200," was his first answer. The giant bedspring captured the satellite microwave signals landing on its surface, and because the entire surface was very gently and precisely 'shaped' so as to cause the microwave signals to 'focus' to a central point, the ground mounted antenna was attractive to duplicators. There was more. Swan had worked out that while a 'parabolic' antenna (the form all other 'dishes' took) was for most applications desirable, his 'spherical' design (a derivative of a mathematical based parabolic) offered new options.

When the user wished to intercept RCA's F1 for example with a parabolic dish, the entire dish structure had to be shifted - moved and refocused - from one tiny speck in the sky to a new speck where the second satellite was located. Moving a 500 pound dish, accurately and with repeatable precision, was an engineering challenge not yet resolved. Swan's spherical simultaneously intercepted 9 or 10 different satellite locations and bounced or reflected the signals from each to a new (easily determined and located) 'spot' a few feet in front of the reflector surface. This gave the user two options.

First, the 'dish' did not move. But the much smaller feed did, a few inches to a foot along a straight line left or right in front of the reflective surface. Option one - mount the feed on a simplistic (camera, for example) tripod, mark on the ground where each satellite 'reflected to' and to move from F1 to W1, simply go outside and shift the tripod to the new, predetermined location. Not as handy as having a rooftop antenna rotor on your terrestrial TV antenna, but close. Option two: Use two feeds, each on its own tripod, and to switch from F1 to W1 simply change the cable going into the receiver, inside.

Oliver Swan died from cancer early in December 1979 after attending (with great physical effort) CCOS 79 and then SPTS 79. Prior to his death, I had spent enough time with the man to create a 'Swan

Spherical TVRO Antenna Manual' which in the same way the Howard and Coleman terminal manuals provided insight that launched the receiver industry, Oliver launched the home antenna industry.

A number of individuals bought this manual, one or two took the time and made the effort to travel to Bisbee to visit with Swan before he died. Each would during 1980 bring out their own (commercial) version of the spherical antenna.

The real beauty of the antenna was that locally available materials (redwood in place of the heavy galvanized pipe, window screen available virtually anyplace) could be acquired. 'Kits' of the main parts and the custom Swan feed horn appeared in CSD advertising early in the year, some as low as $495. The '8-Ball' brand out of (yes - again) Arkansas was the instant best seller because creator, Hayden McCullough, had formed a genuine bond with Oliver before the inventor died and became the nearest thing to a protégé that Oliver left behind.

The sum of all of this was simply that antennas, because they presented solvable mechanical problems, were not going to get in the way of the explosion in home dish systems. For many thousands of people, they would own and have installed an antenna but initially no amplifier or receiver to connect to it!

The amplifier. The reason for the amplifier was/is many-fold. The microwave satellite signals captured by the antenna were/are very-very weak. Too weak to be converted to TV images and sound without amplification. Moreover, between the antenna and the receiver was a piece of cable. In the first installations this special design coaxial cable was 7/8ths of an inch in cross section. Big stuff, rigid and very difficult to install. And expensive - up to $5 a foot, plus the custom connectors that allowed you to plug into and out of the cable, which ran up to $50 each (two required).

The complexity of the amplifier was related to the calculated amount of satellite signal that would be 'lost' (absorbed as it travelled through the cable) while being transported from outdoor antenna to indoor receiver. Which meant that if the losses could somehow be mitigated, the design of the amplifiers could be modified and the price lowered. At this time the LNA or low noise amplifier portion was still above $1,000 per gadget (by 2000 the clever Asians had so dominated the market that the best grade of amplifier was selling to the end user for as little as $15 each!).

Remember David Barker? He was the Motorola microwave engineer from Phoenix who stood the MDS world on its ear by appearing at

SPTS Oklahoma and outlining on the blackboard for all to see a vastly improved MDS converter device. David did not attend SPTS Miami because back home in Arizona he was working on something every bit as revolutionary for satellite TV.

David proposed in the April 1980 CSD something he called the 'Superverter'. A dumb name but hey - as we would discover, marketing was not his 'thing'. For the princely sum of $400, he offered to sell one of these 'satellite receiver items'. There were some important innovations in this unheralded entree. First of all, and most important, David was placing a major portion of the receiver out of doors in a metal box, right at the antenna. Which meant?

No more 7/8ths inch coaxial line. Much less amplifier 'gain' which immediately translated to a new (optional for David's receiver) breed of LNA that would shortly cost under $500.

His very small (1/8th page) CSD advertisement attracted only the innately curious. In typical engineering-ese he listed the technical specifications which only a fellow engineer would even understand ("70MHz IF 30 MHz bandwidth 25 dB gain 10 dB noise figure..."). The tag line, almost a throw away, held the big news. "Mount at antenna." Here was the seed for a major revolution in satellite receiver design. Four years hence, during an awards ceremony sponsored by CSD Magazine, as David accepted his 'Pioneer Award' for innovation, he told the assembled throng of more than a thousand:

"I was a typical engineer, and I never thought how dramatic this development was. I took out a small ad in Coop's rag and people ordered some. I knew how well it worked, but when buyers started writing and calling me with exclamations like - 'Hey - how can you charge me $400 for this???' - I misunderstood their statements and thought to myself, Gee - maybe I have overcharged them! So I sat down that night and wrote out refund checks to everyone who had bought one at that time, typically giving each back $100 because I didn't want to be seen as a gyp artist!"

Superb engineer - yes. A marketer? No way. What each was really saying was, "For $400 I bought a receiver system which, with a few additions of my own, is head and shoulders better than anything else on the market!" They were applauding him, not berating his price. Barker's innovation would mature in leaps and bounds and by the July 1980 San Jose SPTS, it would steal the show and lead directly to the first mass-produced satellite receivers for the home dish industry. A competitor, Norman Gillespie with a very similar 'invention', was doomed to failure because of the simplistic eloquence of Barker's

design. And something called 'KLM' which we will discuss shortly.

And as with fellow Arizonian Oliver Swan, Barker would 'neglect' to pursue patent opportunities for his novel circuits which of course meant that everyone else in the industry - 60 to 90 days later - would have the same circuits working for them as well.

John Ramsey is further illustrative. Ramsey Electronics was a business that began on a card table while young John was in college. He had an innate curiosity about high tech electronics and had begun a business selling both do-it-yourself kits of parts with instructions (ala Heathkit), or, wired and tested devices ready to unwrap and plugin. Because Clyde Washburn lived 'just down the (Rochester) street' from John, and Clyde had no interest in becoming a receiver manufacturer, he and John had joined together to create a partnership for the Washburn receivers. Clyde would design and troubleshoot the unit, John would turn the prototypes into either a kit of circuit boards the buyer would build ($1995) or offer as a wired and tested receiver ($2995). But Clyde, like 30's TV pioneer Philo Farnsworth, was a very difficult person to work with; heaven forbid 'for'.

After Clyde's Miami disaster, tension between the two exploded. Clyde wanted to blame Ramsey for his Miami failure, and John would have none of that (ultimately it would be proven the problem was of Clyde's doing; he had selected a 'TV set output channel' which clashed with a local Miami TV station resulting in interference to his satellite receiver's signal). What Clyde was attempting to do with his $2995 top-end receiver was 'elegant'. John's approach to design was more similar to Barker than Washburn so while Clyde was agonizing how to turn out a complex design, Ramsey was puttering on his card table with alternatives. Some months before SPTS Miami, Ramsey had sent me a bread boarded but functional home built receiver to test. He called it the R1. It worked, after a fashion, but I told him straight out it had a ways to go before it could be commercial. It happened he was ready with the much improved R2 for Miami but his association with Washburn prevented him from showing or selling it. So he had brought down 60 'parts kits' and some hastily collected step by step instructions which a person with an electronics background could turn into a working (R2) satellite receiver. Because of the Washburn agreement, R2s had to be 'sold' under the counter. All 60 disappeared for cash money the very first day of Miami's show. When word of this got back to Washburn (try keeping a 'secret' at a SPTS!) this was something approaching the straw and the camel's back. Faced with his own receiver not working and utter humiliation in front of nearly 1,000 people,

Ramsey's sideline was the capper.

Ramey's R2 had a total parts cost of under $30. It was David Barker with a unique twist because Ramsey, unlike Barker, had years of experience turning out kits and Ramsey, unlike Barker, knew and understood (and practiced) intelligent marketing. How much would the R2 sell for at San Jose? $995. Profitable? The mind fair boggles. Ramsey Electronics 'pocketed' as much after costs with a single receiver sale as Susan and I did when selling 36 our own manuals. I was perhaps in the wrong business!

Steve Birkill in CSD was dealing with a new subject in which I saw an opportunity in San Jose to repeat the outlandish introduction of Intelsat while in Miami. Steve had been experimenting from his UK home with reception of something called 'Molniya', a series of Russian satellites with a totally unique operational system. Unlike other TV relaying satellites which maintained a stationary position above the equator, Molniya was a series of 3 (or more) satellites in something called an 'elliptical' orbit. And on board, one quite powerful channel of Soviet TV.

Much of the Soviet Union is landlocked to the north, at and above the Arctic Circle. If there was one identifiable flaw in Arthur C. Clarke's 1945 *Wireless World* plan for geostationary satellites, it was their inability to be 'seen' from latitudes further north than approximately 75 degrees. For 99.5% of the world's population, it did not matter - we all reside nearer to the equator. But for that handful of Russians who live north of that point, no geostationary satellite could reach them. The Soviet answer was to modify the orbit or trajectory of their Molniya series satellites so that it actually went north *above* the North Pole for 6 to 8 hours each day. By equipping their TV reception terminals with Molniya orbit tracking motors, they could 'follow' the satellite through its daily, predictable, pathway in the heavens. And by placing 3 (or more) Molniya's in the same trajectory or pathway they could approximate 24 hour television relay to such regions. Number 1 'hung' above the North Pole for 8 hours (think of it as the television satellite equivalent of 'The North Star') , and then as it descended towards the South Pole much like a roller coaster rushing downhill, a second Molniya appeared at the beginning of the same pathway and by redirecting the satellite dish to the 'start point' of the new satellite, it could then be followed for 8 additional hours. And repeating with a third Molniya; 24 hour TV service.

In this way all portions of the USSR's 11 time zones were 'plugged in to Moscow' television. And the interesting part. The geometry of

the Molniya orbit made it viewable (i.e.., it could be simultaneously seen from say Oklahoma or California) at the same time it was transmitting live TV by relay to the northern USSR locations.

What made this especially interesting was the content of these telecasts. Unlike Soviet TV 'released' to the western world on their normal geostationary satellites, this programming was intended only for internal Mother Russia. A wide ranging group of folks, including the CIA and various Russian study think-tanks, were extremely interested in being able to 'eavesdrop' on this content because the wording of news stories and the thrust of their programming would - they believed - give a truer representation of what the Politburo was 'really' saying to its people; quite different from their 'international image'.

Birkill had provided, in CSD and to me privately, the technical information required to do this from my Oklahoma home base. I thought that as PR-valuable as the Intelsat reception had proven to be in Miami, "tapping into the internal Russian TV service," through Molniya, would be even more helpful to the young industry. I badly underestimated what would happen.

During April and May, using a 11 foot ADM dish, and local helper Tom Gardiner I began the search for Molniya from Oklahoma. The receiver had to be set to a specific frequency, the antenna's feed system had to be adapted to a special set of circumstances, and the real challenge: Because the satellite's pathway varied every hour of the day and could only roughly be defined as 'north' of Oklahoma, locating the satellite was as complex as chasing a minuscule needle in a huge haystack. Tens of hours went into the search with no results, even though Birkill was telling us, from his calculations earned by monitoring it in England, exactly where to look and when.

The answer, it turned out, was a miscalculation (by me, not Birkill) on the time adjustment between the UK and Oklahoma. By being off one hour, we were looking in a segment of the sky where the satellite was not. The procedure was gruelling. First we turned a crank to elevate (or lower) the antenna's 'look angle' (how much up it pointed above the imaginary northern horizon) by approximately 1 degree at a time. Then while one of us pushed on the antenna to slowly slide it east (or west) from the line where we expected to find Molniya, the second shaded the temporarily installed outdoor TV monitor and squinted in the bright sunlight for some sign of a TV picture appearing there. No luck. Do it again. And again (ad infinitum for hours at a time).

After several days of this, and changing out the antenna feed, the antenna LNA, and the receiver repeatedly we got very lucky and actu-

ally found a sign of a TV signal. From there it was all downhill. Or so we thought.

Once you found it, every five to fifteen minutes the angles on the dish (where it pointed, how high up it pointed) had to be adjusted to maintain the dish pointing squarely at the moving satellite target. All of this was recorded in a notebook, heavy waterproof ink markers used to scratch calibration points on the dish's superstructure so we could hopefully locate the next one in the string not only that day, but the next day as well. To make it more complex, each day the 'orbit path' changed by approximately ten stellar degrees with reference to local time.

Once found, and appropriately documented in the May CSD, I announced we would show off 'live Russian TV reception' at San Jose. The phones rang off the hook. It seems the CIA and some University think-tanks funded by the US government were very anxious to witness this technology; "could we come to see it before San Jose's show?" Several prominent universities (Columbia, UC Berkeley, University of Texas - Austin, to name-drop a trio) wanted to know who could be contacted to install such a receiving system for their 'Russian studies department'. Even the *Wall Street Journal* hopped on me and did an extensive report. If there had been any doubt about the reason why people would flood to San Jose, that doubt was now gone.

Shades of Radio Swan. A fellow wearing the mandatory grey flannel suit appeared at my doorstep, displayed an impressive badge, and asked to come in, "to inspect the Russian TV reception." I noticed his car was of Government issue with GSA license numbers. It happened he was about two hours too early for that day's telecast as while the Molniya was receivable for almost 24 hours from Oklahoma, the difference between Oklahoma time and Moscow time dictated when the transmissions actually took place. The USSR, you might recall, stretches across 11 time zones and for a few hours each day none of these time zones have TV. He picked such a period (early morning in Oklahoma) and hung around amusing himself with some manuals we published and back copies of CSD and CATJ.

"Where is the sound?" he asked as the sign-on process came up. The image was not great but the first feature, a film showing the Russians planting grain for the 1981 season, was an eye opener.

"They still do it all by hand?" he noted. They did. Hundreds of well worn women bent over 90 degrees at the waist laboriously shoving seeds into a furrowed row.

"Why is the sound - so bad?" he pondered. A technical glitch. The

Molniya satellite used a unique sound transmission system known as PWM or pulse width modulation. They did this unusual thing because it saved them valuable transmission power but as it was something only the Russians did, we were still scratching to work out the proper circuits to make the audio match the relative quality of the picture. I explained that to him, and he decided with me that in time - perhaps not very much time - that would be fixed.

"We have some people who would make short work of this," he offered. I was certain they (whoever 'some people' might be) did.

Birkill had actually come up with a rather elegant solution to the challenge but initially it required more parts and a larger circuit board than an entire satellite receiver. Steve was seldom stopped by challenges but his solutions sometimes bordered on being beyond the average (or better than average) home builder. This was one of those. The May CSD carried a Birkill report on the subject complete with schematic diagram (thus allowing a builder to duplicate his effort). But the best answer would be American bred and 60 days away.

We were attracting slightly too much attention. Correct that: Way too much attention. CBS Morning News and a host of TV shows were invading our 'space' and reporting on this new technology. Each such report had the unfortunate side effect of generating thousands of new would-be enthusiasts at a time when we - as an industry - were totally unable to deliver equipment to those who were already converts. A month before San Jose's July 4th opening Susan and I cut off registrations. No more room at the inn. Or anyplace else either. Certainly the 500 seat meeting rooms were oversold and I planned to try to cope with the totally unknown of daytime (those not staying at the facility) on-the-spot registrants by placing TV sets showing the technical sessions at locations surrounding the pool area of the San Jose Hyatt Inn. Of course there was no way to 'police' whether those standing outside the lecture halls were registered or not, except by their badges. Anyone without one was an interloper. But what would we do - tell him (or her) to leave the public domain area of the Hyatt Inn? I thought not. We would just roll with it.

One of the folks who purchased David Barker's 'Supertuner' was an engineer for a California based ham radio equipment manufacturer, KLM. This was an unusual firm made up of three guys I had known personally from my college days, all fellow hams. K stood for Kenny, L for Louis and M for Mike. Kenny was the brains behind original engineering, Louis knew how to manufacture stuff in quantity and Mike was the antenna wizard. They were doing a modest,

$1,000,000 per year, business in ham radio items. And struggling.

Before - just before - the San Jose meeting Kenny decided the David Barker Supertuner was outstanding. The trio had been badgered for some months by a fourth ham radio operator, Peter Dalton, who was what none of the trio was - a superb marketing guy. He wanted them to jump into satellite equipment production but as they had no money for such a side trip, they were reluctant. Kenny showed Dalton the Supertuner and explained how it could (and would) cut receiver costs, greatly increase the assembly speed of a receiver, and marginally improve performance. Dalton was hooked. He immediately went looking for finance - reportedly several million dollars of finance.

Located as they were in California's Silicon Valley, the home of American electronics innovation, finding investors was not difficult. Moreover, all Dalton had to do was arrange for these would-be investors to attend the San Jose show (a local freeway drive of a few minutes time) to show-off the tremendous vitality of this exciting new industry. The next trick for him was double barreled.

First, dangle big time returns to Kenny, Louis and Mike in exchange for giving up controlling interest in their company. Second, to convince David Barker he should license KLM, with him as the newly appointed President, to produce his Supertuner in a yet to be born KLM satellite receiver.

Visions of 1,000 receivers per month danced in front of Kenny-Louis-Mike's eyes. And Mike was given the new responsibility to create a KLM satellite antenna so the firm could offer 'complete package systems' under one brand, one label.

All of this and much-much more came to a head at San Jose. The crowds were inundating, we made USSR TV reception function pool side on a 11 foot ADM antenna, while several San Francisco and San Jose TV crews followed us around with videotape running and the industry's first trade association was formally organized.

SPACE, (the) Society of Private And Commercial Earth (terminals), had actually germinated during SPTS Miami. Good to my word, I invited Washington communications attorney Richard L. (Rick) Brown to speak there and he told attendees:

"People you do not know who have millions, billions of dollars invested in the present television delivery system are very interested in what you are doing. They see you as a threat, as a system of reception and transmission which they do not control. They will do everything they can to either shut you down or to assimilate you as a part of their present operation. I won't tell you what to do - that is not

my responsibility. But I will suggest you collectively form a trade association to deal with this threat."

When we reached San Jose, a member of the US House of Representatives, the Honorable Congressman Preyer of North Carolina, was introducing HR7747; a bill which would make it illegal for a private (home) earth terminal to tune-in any transmissions for which they did not have written permission. And there would be monetary fines of $250,000 (and more!) if someone was caught watching - for example - HBO in their home. Serious stuff.

SPACE was formed on a lawn under a palm tree at the Hyatt San Jose as an industry trade association. Taylor Howard was either appointed (or railroaded - your choice) to be the first 'President' (later Presidents would be elected by Board vote). As a pioneer in the industry I managed to be on the Board of Directors after making a contribution of $500. It did not hurt that it was I who conceived SPACE, gave it its name, and arranged for Rick Brown to be present to make it happen.

To make SPACE work required money. Rick was benevolent to a point but this was going to be at least $10,000 a month for his 'legal advice and time' (it would grow to close to $100,000 a month in future years). We 'passed the hat' to raise initial seed money (less than $5,000 from the crowd standing in the sunshine), Taylor Howard gave an impassioned speech pointing out that (as Ben Franklin had said before him), "Gentlemen - either we all hang together, or we will hang separately." The message was clear - all of the excitement of the show, reflecting the tremendous enthusiasm now gripping the nascent industry, hung precariously in the balance.

The potential of monetary fines was driven home by a photograph we published in CSD for August 1980. There, in front of a 16 foot dish antenna installed in Hialeah, Florida, Bob Behar's firm AB Electronics had multiple big-screen TVs showing off to a crowd of more than 2,000 the (satellite intercepted) professional boxing match featuring Leonard and Duran. Behar did it as a promotional 'stunt' but had the House bill been in effect at the time, his monetary fine would have been $1,000,000. We all understood what that meant. Even having a home-dish 'showroom', with HBO or some other 'pay' service on display, could mean a similar monetary fine. Obviously this was a major threat to a very young industry. Behar reported as a result of this 'stunt' and the widespread publicity, his firm wrote orders for more than 20 home dish systems in the Miami area and he was up to his eyeballs in quotes for 'offshore' systems that would land in places such as Antigua, Cayman and Colombia.

Behar's eye and ear for creating widespread publicity was merely being tuned up. During July 1980, the USSR version of the Olympics was held. You may recall the United States pulled out of the event at the last minute leaving Moscow holding the bag. As a consequence no American TV coverage of the Olympics which of course also had no American athletes participating. And that left America's TV networks and news services essentially without film-footage of the event as the American Department of State, anxious to 'isolate' the Soviets on this one, forbid American firms to send crews there.

Enter Behar in Miami's suburb of Hialeah. He installed some 16 foot dishes and found a Russian geostationary satellite over the Atlantic relaying the 1980 Olympic coverage to Cuba. As a bit of a showman (he would become quite expert at this in coming years), Bob alerted local newspaper, wire service and TV network offices.

"If you want coverage of the Moscow Olympics, come to our facility in Hialeah."

The Miami Herald headlined, "Antenna Dishes out Moscow Olympics." *The New York Post* front page headlined, "Antenna puts him on wave length with Olympics." CBS and NBC promptly sent film crews.

Amongst the constantly ringing phone calls, this conversation:

"My name is XXXX and I am with the State Department in Washington. I am instructing you to cease and desist tuning in those Russian satellites." The federal type went on to explain to Behar that, "under Intelsat regulations it is illegal for you to privately tune in these point to point microwave broadcasts."

Behar: "I beg your pardon, sir. But Russia is not a member of Intelsat and this is not an Intelsat satellite. This is a Russian satellite and whom would you suggest I ask for permission - the Russians???"

Dead silence. Then, "I will get back to you." Of course he never did. But CBS and NBC established permanent crews at his AB Electronics facility for the duration of the Moscow Olympics and for tens of millions of US TV viewers, it was Behar's 16 foot satellite dish that allowed them to watch the highlights on the network evening newscasts of the Olympics which the US Government had opted out of.

Shades of the past and Radio Swan. One of the calls came from the Brazilian Rede Globo office in New York. "I think what you are doing would be an interesting story about how America works," said he. "I am sending down a news crew from New York." Behar could not resist.

"Ahh, OK" responded Behar. "And while they are here, I will tune-

in your own evening newscast from Rio de Janeiro so they can watch it here."

Silence. "Say that again!" Behar did so.

"You mean with this antenna of yours you can actually watch our Brazilian television live in Miami???"

Behar could not resist. "I will go you one better. After you send down the news crew and do your story, and send it to Brazil, when it runs in your evening newscast I will tape the story about my system and send you a copy!"

All of this happened in the two weeks following SPTS San Jose and for nearly a month it was difficult not to find a story about the rapid advances in 'home satellite TV' in virtually any newspaper, magazine you picked up, or some mention of it on network television. It was also no wonder that Peter Dalton was able to raise in a matter of days all of the millions he required to turn small KLM into a major 'new' electronics company. It was, as they say in the money trade, 'over subscribed'.

Even in Canada they were feeling the not always friendly reaction of citizens. Where only 18 months prior Rod Wheeler was 'hiding' behind snow banks from the RCMP, Canada's Vice Chairman of the CRTC in August issued a new set of rules. (1) Private terminals would be OK. (2) Tuning in American TV would be OK. But, (3) if you connected your terminal to a rebroadcasting transmitter (or cable TV system) - shame on you.

The CRTC estimated, "between 700 and 1,000 private terminals are now operating in Canada." Dr Pat McGreer, Science and Communications Minister for the Province of British Columbia, when advised the federal government was going to start arresting operators of private terminals, immediately installed a 3.8 meter antenna and system on the front lawn of the BC Parliament Building. Then he sent a message to the Ottawa bureaucrats.

"Satellite broadcast reception is the best entertainment opportunity Canadians living in remote areas ever had and it is time people living in these (remote) communities had some support and encouragement. I challenge the federal regulators to come here and shut down the terminal I have installed in front of our Parliament Building first, before they go after the estimated 200 operating in rural BC."

The 'war' was on, the 'dish' was out of the bag and there would be no looking back. The sands of San Jose were still blowing when I found it impossible not to announce 'SBOC '80' for Houston, Texas; November 17-18-19. SBOC? Satellite Business Opportunity Conference.

If I was nothing else, I was at least 'timely'.

My intuition had told me that after San Jose it would be best to wait until the Spring of 1981 for the next show. The attendees at San Jose changed my mind in just a few short weeks. I sent out survey forms to those attending San Jose and discovered 77% were sold on a third show for the year. Another show was not high on my personal priority list.

Look out Provo - here we come!

September 1981. CSD number 12, a year old. This issue carried 8-1/2 pages of paid-for advertising (plus our own for our products and SBOC '80 in Houston); up from 1-1/2 paid-for ads in the first issue. Subscriptions were, well, almost annoying. I had started with a local Oklahoma City job print shop, not unlike the facility which created my first DXing Horizons in 1960. But because I was on the road or telephone or locked away in my basement work studio so many hours each week, I had hired a local freelancer to oversee the publishing. Those who read every single word in the 40 page magazine would find buried on page 2 a slight change in the ownership statement of CSD.

"Coop's Satellite Digest is published monthly by Robert B. and Susan T. Cooper, doing business as Satellite Television Technology (STT)." And the addition. "Editorial offices are located at West Indies Video, Grace Bay, Providenciales, Turks & Caicos, BWI." And for a final zinger: "Total contents copyright 1980 STT, USA and Turks & Caicos."

My personal plans to actually 'move' to TCI were extremely closely held. Attorney Rick Brown who spends his life reading fine print was one of the first to query me.

"Turks & Caakos Islands? How in the hell do you pronounce that?" Obviously he was not asking me to pronounce it. I mumbled something about 'off shore tax regimes' and quickly changed the subject. To be honest, 'taxation' was at the very bottom of my list after sorting out the IRS problem. But Rick was highly paid because he let nothing get by him; ever. So my oft-handed 'tax regime' remark sent him to the library. He next brought the subject up when we met in Houston.

"Taxes in the Turks & Caicos," (he now had the pronunciation

correct). "This is a tax haven, like Cayman and Bermuda. Only it looks better because nobody is actually doing much there. No income taxes, no land taxes, no sales taxes, very modest annual corporate fees. Tell me what this is all about."

I would. But not right then. I was only vaguely aware of the three points he made; the folks I had met and come to know on Provo, the 'white folks', were either total misfits like Ed Hegner, or, as it would turn out, 'sent into exile by their families' because they were troublesome. There was no bank on Provo, no post office, and the one attorney who practiced there was a malcontent from Saskatchewan who was more interested in consuming alcohol than practicing law.

SBOC '80 was a total buzz. The Adam's Mark Houston Hotel was essentially brand new; we were the first group to use it and signs of final finishing work were evident. We did all of the usual things - new manuals first introduced there, sending 30+ hours of videotaped presentations through the hotel's MATV system and a major focus on, "how you get into the home dish industry world of business."

I had placed some advertisements proclaiming things like, "Everything you ever wanted to know about the new home satellite dish industry - but did not know who to ask!" in a number of publications including The Wall Street Journal. Yes, we were sold out before the doors opened at $150 a head.

The thrust of the sessions was broken into two segments, parallel (twin) sessions that ran for three days. In stream 'A' oldies like Taylor Howard educated the newbies about how satellite receive systems worked. In stream 'B' would-be entrepreneurs listened to folks including Miami's Bob Behar discuss what it took to sell 20+ systems a month at an average price of $15,000 each.

The weather was putrid. This was important because out of doors in a huge parking lot more than 20 satellite antennas were assembled to show off various products and in support of the indoor exhibit hall booths. Every SPTS/SBOC had the same exhibit hall feel; you could walk out into the ever enlarging parking lot (14 antennas in Oklahoma, more than 20 in Houston) and spend a full day just inspecting the many versions of home dish antennas on display. Then you'd trundle off inside and spend another day touring the nearly 50 booths where equipment was set up and the pictures captured by the parking lot antennas were on display. Putrid weather greatly impacted the speed (and quality) of the antenna assembly portion and some were still building on day-three (November 19). Between the outdoor antenna lot and the indoor exhibits, you selected the 'A' or 'B' lecture sessions

that most suited your particular interests.

Three days flew by - the most common tongue-in-cheek complaint: "This should last a week, or more!"

Right. Over my bruised, tired and deflated body. As the impresario of each show, there was the Herculean task of making everyone happy all of the time.

"I can't find my set of wrenches. Do you have a spare set so I can finish assembling my antenna?"

"My booth is against a wall and the guy across from me is demonstrating satellite stereo with a very loud speaker system. Move me."

"Where is Taylor Howard?"

"Can I get you alone for 30 minutes? I've got some investors here and we need some questions answered."

"I'm getting interference from somebody, I think it is the Avantek booth. Can you fix it?"

And my favorite.

"Hi. I'm James Smith from Alberta and I wondered if I could ask you a few questions?" I had a stock answer for this since my feet never stopped moving for five or six days (we started early and stayed late).

My stock answer. "I can't stop to talk but if you want to walk along with me and ask your questions, I'll do my best to answer until we arrive where I am headed," (possibly chasing a set of wrenches for the first guy).

All of this had a varying impact on my family. Susan was in charge of collecting people's money and preparing a lapel registration badge. Most of this was done in advance and huge boxes of alphabetically filed badges were shipped to the show location. But let 400 or 800 people stand in line for two days demanding their entry badges and the best planning fell to heck in a foot basket.

Eleven year old Kevin, a computer whiz before there were home computers, loved to roam the floor with his 'full entry anyplace' badge and bring me snippets of things he overheard people say. Some was informative, some annoying, most was trash. But on more than one occasion this non-intrusive 11 year old brought me back significant insider information that he caught while 'eavesdropping' at the show. Those who had been to prior shows quickly recognised him as 'Coop's son'. Newcomers thought nothing of his standing around seemingly lost in his own thoughts. In Houston he did one of those things which made him especially memorable. A new-to-the industry exhibitor had spent a day trying to locate a satellite - any satellite! - with their dish. Kevin stood there watching, I was later told by a witness as to what

happened, as he walked up to the guys who were old enough to be his grandfathers.

"Having a problem?" he asked. It was one of those 'he was a nicely dressed, bright looking kid who perhaps seemed vaguely familiar'. The lead guy answered:

"We are having trouble finding the satellite."

Kevin: "Any particular satellite - like maybe F1?"

"We'd love F1; say, do you know anything about this?"

They had a $100 state-of-the-art protractor for measuring the dish's angles and a Nieman-Marcus grade hand compass to work out north and south. None of this had helped them.

"May I try?" he suggested.

They stood aside and Kevin reached over to touch up the tuning on the $2995 Washburn receiver they were using. Then he walked to the front of the dish to inspect the feed and LNA. Nobody was saying a word. He stood off to the side and squinted with his thumb outstretched and returned to the two dish adjustment points.

"Can one of you help me?" he asked. A guy with a 10 inch crescent wrench stepped forward.

"OK, turn this until I say stop." He did so.

"Move the wrench here," indicating the adjustment that would move the azimuth or east-west of the antenna. "Loosen that nut and push gently until I say stop."

Kevin was squinting first at the rim of the dish and then at the Washburn receiver meter.

"Stop. Tighten the nut there," he said. "Now, turn on the TV set and you'll have HBO West Coast."

In a total state of disbelief they did as instructed and sure enough, there it was. After 30 seconds of back slapping and jubilation the boss guy looked up to show Kevin his appreciation. He was gone, having evaporated back into the crowd. The fellow was inquisitive who this 'masked kid' had been and the fellow who told me the story, a pioneer exhibitor, told him he had just had an experience, "with Coop's son Kevin." But before I heard the story from the witness, this new exhibitor sought me out and handed over a crisp $50 bill.

"What's that for?" I asked. People were always handing me money so the incident was not unusual.

"That's for your son - Kevin I believe? He helped me out of a rough spot today." And he was gone. Hours later in our hotel suit unwinding from the day as I was emptying my pockets the $50 bill tumbled onto the bed. I then remembered the half-told story and asked him if he

recalled helping out "some guy with his antenna." He did, but it was "no big deal."

I handed him the $50 and said, "The guy you helped thought it was and left this for you."

Kevin died in a horrific automobile accident in December 2000. He had grown up leading a very unusual life, infirmed with childhood Diabetes from age 8, and was not your average son. Not many kids of 13 spent an hour talking privately with Arthur C. Clarke at his home in Sri Lanka about their mutually favorite topic, Star Trek. And not many 13 year olds would be handed a top of the line latest gee whiz professional Beta camcorder and asked to record their father's interviewing of Dr Clarke. As you might tell, I miss Kevin terribly.

Daughter Tasha, 9 in Houston, was totally disinclined to be a part of what we did. Her primary concern, at any show, was whether they had 'movies in the room' she could 'call up and order'. Her second concern was whether the in-room menu was available '24 hours'. She would hang out with her mother for a short period at the start of each new day, while Susan tried to make sense of the registration booth, and then with permission retire to our suite and a day of luxury; movies and food on demand.

One of the 'perks' of organizing a show and booking an entire hotel facility was that I always asked for - and received - several rooms or suites as 'comp' (as in complimentary). So our stay in Houston was essentially without cost and whatever Tasha ordered was 'on the house'. She knew this and when we finally returned dog tired to our suite well after 7 or 8PM at night, there stacked up around the room would be between 2 and 10 separate trays of food that she had ordered, pecked lightly at, and set aside. Both Tasha and Kevin knew that as we had finally moved to Provo, they were switching to a self-administered 'home schooling' system. So Tasha's self indulgence was a work-up to what amounted to being abandoned in mid-flight by her flock of Geese.

In fact we had moved to Provo during August. Quietly, without fanfare. Rick Schneringer, after living with us on and off for several months between the prior November and SPTS San Jose, had managed to round up enough money to make a down payment on 'the show'. I felt it important we not simply 'disappear' without adequate notice to the industry and it suited Schneringer's finances and our schedule for him to appear to be our 'assistant' during San Jose (this time, unlike Miami, we did not charge him to attend!). With that allusion created, we could leave him living at our Oklahoma home while we made the

initial move to the islands. An interim bridging-plan was in effect.

He would carry on from Guthrie, Oklahoma as always. I would make the always exciting Hegner tail-dragger flights in and out of Provo a couple of times each month but at that point would transition to commercial air and go to Oklahoma City where the always-next issue of CSD would be completed with my magazine overseer. While in Oklahoma, Rick and I would do massive amounts of information exchange and if something was exceptionally pressing my return trip to Provo would be amended by a side trip hither and yon as required. I planned to do this only until Schneringer had completed paying me for 'the shows', and the house, which he had wisely elected to buy separate from the shows. He had his own home in Texas on the market and as soon as it sold, his wife Gloria would be full-time in Oklahoma as well. Of course it all depended upon the ability to flit hither and yon more or less at will using a combination of private and commercial flights.

September was the first trial month and it would be a disaster. Hegner would be at the root of the problems. To keep CSD progressing each month, I was sending large envelopes pre-affixed with stamps for the USA back with him starting just days after the family and I arrived on Provo. This magazine copy was to be set into type galleys, the photos were to be processed for possible use in CSD, and then I would fly in, sit down and do a marathon non-stop 'paste-up of CSD's now ever growing 50+ pages. Where upon, off to the printer and then to the mailing service to be stuffed into envelopes and dispatched.

That was 'theory'. In actual fact, Hegner's shifting schedule of flights back and forth (in fact, no schedule at all) and his lack of attention to posting my to-Oklahoma envelopes resulted in a panic in Oklahoma by early in September. Word of the shortage of material reached me via a circuitous route (ham radio) and after dumping on Hegner I asked him to fly me to Florida.

"Can't do. Plane's broken," was the gut-wrenching response.

His competition, Howard Hamilton of 40-gallon-drums-on-the-runway fame, offered to haul me down to Haiti where I "might be able to catch a plane to Miami." Many hours later I was sitting on a runway at Habana's Jose Marti airport with the plane surrounded by guys carrying Czech burp guns. Some total idiot had convinced the Haitian flight crew he was serious enough about diverting the plane to Habana that the captain decided to land us there; experience number one (others would follow) with 'seeing Cuba' through a filmy window of a tattered DC7 or 8.

Much (much) later that day, I was in Miami in the dead of night attempting to arrange ticketing to Oklahoma City, via Dallas as it would turn out. In Oklahoma City, somehow a complete magazine had to be typeset and then pasted into printer format in 48 hours. Nobody involved slept for that full period, and if this was going to be the 'norm', the way it would be every month, nobody would ever do this again (like the mythical crew that could assemble the 11 meter uplink antenna; once done, never again!).

As it had been Ed Hegner's responsibility to post the mail packages from Provo to Oklahoma City, during his trips there after we as a family arrived on the island, and he had not done so, everything else about his 'assistance' (always for a healthy fee) was now in serious question. And as my final decision to allow us to move to Provo was totally dependent upon maintaining at least a skeletal connection with Oklahoma, this was a very serious situation.

The Coopers essentially 'slide out of town (Oklahoma) in the dead of night'. Not literally of course. We simply kept it quiet, allowing Rick Schneringer to assume more of the public duties (handling the volume of inquires and orders each day), so that post-San Jose's SPTS, we were as a family quite invisible. We had barely a month after San Jose to be in Florida ready for Hegner to haul us and our emergency rations to Provo.

Between our first trip in 1979 and mid-August 1980, access to Provo had steadily improved. Unfortunately, it was for freight and not people. We arrived just as a new weekly cargo plane service was being tested; they called themselves 'Turks Air' which meant they were really on a freight run from Florida to Grand Turk with occasional landings on Provo's slowly improving rutted sand strip. Earlier in 1980, a cargo ship plying Florida to the southern Bahamas had added Provo to its ports of call and it was now possible to send down a vehicle and large boxes - even by year's end a full 20 foot cargo container. In June I had begun shopping for a suitable vehicle for Provo's unimproved sand track trails. There were perhaps 20 vehicles on the island at that stage, half of which were construction related. Dick duPont and group had finally secured a legal agreement with the Government in Grand Turk, turning approximately 4,000 acres of Provo over to the duPont group in exchange for their promise to build the following: (1) A sizeable resort hotel (it never happened), (2) a small but important network of 'roads' (during a family visit late in 2002 these 'roads' were still mostly coral rock and patches of sand), (3) a landing strip large enough to support planes up to DC6 in size, and, (4) construction of a suitable

dock to allow cargo and fuel ships to 200 feet to moor and off load.

If this had been 2003, a 'suitable vehicle' would have been a Hummer. But in 1980, the nearest I could come was a toss-up choice between a Chevrolet Blazer and Ford's competition. A maroon colored Blazer was my selection and it promptly went into a car dealer's shop to be retrofitted with huge front and rear chrome plated bars, the largest electric winch I could fit into the heavily modified front bumper, triple coats of marine grade undercoating and some electronic equipment. Because only leaded regular fuel, if any fuel was available, was sold on Provo, we asked that the then mandatory catalytic converter be disconnected and ripped out. On the side we had a professional sign shop inscribe "WIV - West Indies Video Ltd."

Susan, the kids and I were in San Jose when the vehicle mods were completed; arrangements to have it in Florida to meet the scheduled shipping date via the cargo shipper leaving Dania (Florida) were already behind schedule. I located a friend who slid into the freshly done Blazer and headed off non-stop to Florida. I would see it completed for the first time on the island with under 1,600 miles on the odometer. Bad mistake.

The Blazer was pulling a twenty foot custom built fully galvanized trailer loaded with 9,000 pounds of wooden crates; typically 500 pounds or so each. Inside this first major shipment, an 11 foot ADM satellite antenna, multiple 1/2 and 3/4" tape machines - a complete low power TV station in fact, and enough 'raw' supplies to tide us over until we had a better system worked out. The Blazer also had a fully functional 100 watt ham radio station which in a serious emergency would become the Cooper's 'communications link of last resort' on Provo.

The day we returned from San Jose, a second parallel system began. Each week, a uniquely colored and marked box sent via Emery Air to Turks Air Miami. The theory was - it left Oklahoma City on Monday, arrived Miami on Tuesday and would be on Provo on Friday. Nice theory, although as Edmund reported to me on ham radio, "first box here on schedule". It would turn out to be a false illusion. This weekly box was to be the CSD and show 'lifeline' - Schneringer would pack in anything and everything relating to the magazine and show, mostly paperwork, and whatever store bought items as we required on a week to week basis. After that first week's successful shipment, I went for broke and hauled 4,000 pounds of heavy duty cardboard containers to Emery. The load was too big for their plane, and rather than ship some of it, none flew. Which meant nothing arrived at Turks Air on

schedule, When it finally did arrive, Turks Air had an unexpected shipment of school desks and chairs which filled their DC3 to overflow and our 4,000 pounds was bumped. Not just that week, but the following week as well.

I or rather we as a family could scrape by without most everything being shipped except the weekly specially marked 'lifeline' box. Without it, CSD could not be hacked out on a portable typewriter and through Hegner the copy returned to Florida for airmail transport to Oklahoma City's typesetting facility. And the forthcoming Houston show required dozens of questions be answered weekly from would be and signed up attendees and exhibitors.

Thus the panic driven trip through Port-au-Prince (Haiti) on September 16th. Being hijacked to Cuba carries an element of adventure. Over the next three years, it would happen to me three times and not once did I actually set foot on Cuban soil. There is nothing particularly romantic about sitting in a dirty, foreign operated, airliner with no air conditioning for many hours while the officials worked out what to do with the idiot (or idiots in one case) who demanded carriage to Cuba. When the Cuban soldiers boarded the plane to walk the aisle way (either out of abject boredom or idle curiosity) I always pretended to be sleeping not wishing to attract any interest from them with their Czech burp guns. Little did I know that in just three years I would be in Cuba for an entirely different reason and this time I would be planning, with the help of the CIA, to set foot on Cuban soil.

We had rented a home in the Turtle Cove region on Provo which by a great stroke of luck was (1) dead on the best coral head snorkelling beach in the Turks and Caicos, and, (2) had its own water well, and most important, (3) had just received a connection to the island's brand new power company lines. The home would be available until 'sometime in January' when the owners would return for their annual winter visit (they were Canadians). My plan was to get one of our two planned buildings 'liveable by Christmas' so we could be there before the house owners arrived to boot us onto the beach.

In 1980 (and this is certainly no longer true today) the coral heads in front of the Marbury House were in waist deep water and you could, quite literally, slide on a snorkel mask, bend over with your face in the water and see all around your feet hidden in the coral lobsters of several pounds size. Son Kevin discovered Hawaiian slings (a tool one uses to 'spear' large fish) and I never thought it possible I would 'tire' of fresh seafood ("Oh God Susan, not lobster again tonight!"). But I did.

Our Oklahoma to Miami exit trip included five days of heavy duty shopping which we split between Turks Air and Ed Hegner's storage facility. For Kevin, Atari and Commodore early era computers. For Tasha, complete sets of books such as the Nancy Drew mystery series. For Susan, a case of PF15 and higher sun screen. We were also doing preliminary exploratory shopping for plumbing and kitchen appliances for the Annex building. With the assistance of Bob Behar's Miami banking connections, we had opened several accounts with the Continental National Bank, owned and operated by ex-patriot Cubans living in South Florida. The theory here was Schneringer could make deposits in Oklahoma, and after clearing, the money could be shipped to Continental. Another mistake.

Our flight down with Hegner was the first such long-haul experience for the family. It was also my first major experience going 'down' and it would be an eye opener. Hegner had his established 'base' at Fort Lauderdale's Executive Airport, a very convenient location with a Holiday Inn minutes away which would become our 'Florida home' for the next several years. But like everything he did, it was 'clandestine' with no signage to tell people he was even there. This made it difficult for things we shipped to him via Fed-X or anyone else to be properly delivered and stored. My ultimate solution to that would be to rent from him his previously offered 'office space', put up my own signs and hire someone to be there so deliveries could be completed.

The Hegner twin-Beech planes were, simultaneous to our move to Provo, suddenly quite busy. He had discovered a new way to expand his holdings on Provo - opening a 'stateside buying service' for Provo residents. His most marvelous scam was to find a native who wanted a car or truck, and as they had very little cash money, he would negotiate a trade with them. A typically 10 to 15 year old vehicle, delivered via the twice a month water carrier, would be located by he or his wife and transported to Dania for shipment. The scam - and I use this descriptive word fondly - was to trade the vehicle, delivered to Provo, for land on Provo. As there was no established land pricing on the island outside of the duPont acreage being sold by professional agents throughout the USA, it was a 'trade-as-trade-can' arrangement. One, two or even five acres - a function of where it was and how much he could get for a vehicle - as an even swap. Ed Hegner quite quietly and without arousing any adverse sentiment over the years became one of the largest private land owners on the island because of this scheme. I would be one of his occasional 'cash customers' when he brought down a 3/4 ton pickup that was for a land deal that turned sour; we were six months

into beating the poor Blazer to death and needed something more suited to Provo's total lack of even passable roads.

The inaugural downward bound flight. Hegner had assured me that Susan, the kids and I would be the only passengers. So we over five days piled up perhaps 2,000 pounds of boxes, crates and supplies mindful of the limited space available and the peculiar maximum dimensions of a Beech tail-dragger. On the appointed day he appeared at the airport with three new passengers and their own baggage. His explanation was pure Hegner, and his solution was, "We'll leave most of your baggage behind - until next time." Whenever 'next time' might happen to be. So for several frustrating hours we hauled all of our boxes out of his storage area, dug into each and separated 'must have' from 'next time'.

The adventure was just beginning.

With piles all around us, he advised one of the new-extra passengers to climb aboard and sit down in the co-pilot seat. Then he put himself into the pilot's seat and leaning through his slide-open window gave me and a Florida based helper instructions.

"Stack those PVC pipes in the aisle way. Now fill up the front two seats with boxes - no, we can't take the seats out because I may need them coming back." And so it went - starting at the bulkhead directly behind the co-pilot compartment we packed the plane's aisle way one seat row at a time from front to rear. When the first two seats plus aisle way were filled, two more people took their seats and the sequence repeated - fill up the aisle way, put in two more people and so on until I was alone on the tarmac with far more boxes than would fit the small space remaining. I happened to notice there was also no seat for me.

"No sweat m'on! You ride in the john!"

I had not even noticed we had one towards the rear of the plane directly opposite the single entry/exit door. In a future flight halfway to Provo I would venture to open the john door and inside would find a Bahamian lady of perhaps 250 pounds with two children somehow crammed around her as she sat on the toilet seat, and in her lap, a baby pig. This time I was the fortunate person who would ride for five-plus hours cramped into 'the john' with the last boxes placed on board all around me.

With me in the toilet and the ground guy cramming boxes that would fit around me, the last step was building up a wall of boxes from the john door to the plane's entry/exit door. Picture this guy pushing and shoving on the last box he could cram in and then hurriedly rushing to slam the fold down door shut before the final

box could fall back out of the plane on top of him.

With all airplanes there is something called 'weight and balance' in the trade. It means there is a maximum weight any plane can carry and there are sound laws of physics which govern how that weight is distributed between the plane's nose and tail. Too much weight, concentrated in the wrong portion of the plane, and it becomes difficult - nay, impossible - to maneuver the plane, especially on landing. Hegner's sense of 'W & B' was his own.

"If I can taxi it down the runway and get it off the ground, it passes." Civil Aviation regulations demand that a pilot complete a 'W & B' written form, logging the various weight and loading factors, before exiting the airport. I never saw Hegner complete such a form, and doubt he bothered to even keep a pad of blanks around. Looking back with the benefit of 20-plus years hindsight, flying with Ed Hegner was probably one of the dumbest things I did in my entire life. Worse yet, in the next five years I would do it more than 75 times.

So I rode to Provo in our 'big move' in the toilet. The kids found it exciting, Susan found it terrifying and I was claustrophobic as the toilet had no window and very dead air permeated by whatever it was that had an odor in the boxes crammed all about me. Paradise was waiting for us but the trip down was sheer hell.

No problem m'on

Within a week of arriving, we were up to our armpits in 9,000 pounds of water-freight plus of course the Blazer and trailer, and, the 4,000 pounds of Emery-Turks Air boxes. My priority was to get the 11 foot ADM satellite antenna unpacked and functional. Now in 1980, an 11 foot antenna with the receivers and amplifiers available was mostly very marginal in the Turks & Caicos Islands. We were simply out of the 'beam' for the American satellites. But no other antenna fit our limited physical abilities to ship and then assemble. Because this was a rental location, where we hoped to be only five months maximum, hand mixing sacks of concrete with sand and water to create a 'permanent base' for the antenna seemed unwise. I had shipped as a 'floor' on the trailer some carefully selected 3/4" thick sheets of plywood which when removed and laid on the sand with some Oklahoma designed and manufactured earth auger anchors would become a 'temporary base platform' for the ADM antenna's legs. Edmund, Kevin and I made the sand as level as possible, put the 3/4" sections of plywood together, dug holes to sink the anchors at the corners and then tackled the ADM antenna crates. Also in the over-water shipment, four 10 foot sections of Rohn 25G steel tower which when put together would give us a 40 foot high 'mast' for our TV transmitting antenna. Getting the tower up, the transmitting antenna mounted, the ADM unpacked and assembled, and box after crate of Sony and Panasonic TV broadcast equipment open and installed on temporary tables created from the empty boxes in Kevin's bedroom, was a ten day effort. Before leaving Oklahoma, Garry Willhoite had put together nearly 100 hours of movies and WTBS sitcoms on 1/2 inch tape, complete with 'WIV -

West Indies Video' station identifications. Garry had talked a friend who worked for KOCO-TV in Oklahoma City into allowing him to spend 4 hours after midnight one day in June creating some very high quality moving-graphics station identification video segments that varied from 10 to 60 seconds in length. And as luck would have it, an obscure group of Jamaican musicians had just recorded a song titled 'West Indies' which had gone nowhere in the music charts even in Jamaica. But they kept chanting 'West Indies - West Indies - West Indies' with a very obvious West Indian accent which Garry turned into a customized audio track for the station identifications. Garry could have won an award for this product if we had entered it into an appropriate judging forum - it was that good and it still gives me shivers down my spine when I play one of the old tapes today.

Within 72 hours Edmund's ham radio tower skills had us 40 feet in the air with a channel 4 TV transmitting antenna mounted, coaxial cable down into Kevin's bedroom and the transmitter unpacked and running. We told nobody about this because the satellite dish was still going together. Edmund amused himself with taped movies from our extensive Oklahoma-bred library, conscious that he was the only person in the Turks & Caicos Islands watching TV in his home.

A box of satellite antenna hardware was missing - who knew why, perhaps it fell out of a water soaked carton along the way from Florida and into the Caribbean. Perhaps it was left out at the factory, but minus several dozen 3/8" galvanized bolts, nuts and washers we had to improvise. I finally located suitable substitutes in a workshop maintained by Art Butterfield for his vehicles and after promising him he would be the first one to have 'live American TV' operating (at his home and in his new store) he handed them over to me. My twenty year bond with Provo's most important native was growing.

The popular story on Provo decades later is that our building contractor, Sam Lightbourne, was present when we first encountered American TV signals with the smallish dish. And as the story goes, the first programme we saw was 'Sesame Street' and Lightbourne is reported to have said aloud, "I didn't know that Americans looked so funny ..." a reference to Big Bird. It is a cute story but totally untrue. In fact, the first live TV was a 'sports feed' of an American baseball game and Sam was not present at the time.

The 11 foot ADM was a major problem as the original set of panels shipped with the antenna were badly in error; the space remaining for the last - 24th - panel was about half of the required size and as a consequence we could not complete the dish. But Jamie Gowen at

ADM had already dispatched a new set of panels through Turks Air and all we had to do was 'be patient'. I initially brought three satellite receivers with us, two of which refused to operate out of their boxes although they had functioned without flaw when checked in Oklahoma before shipment.

Then there was the tape deck problem. My plan was to initially operate WIV-TV four hours each night from the temporary location, until we could move to the Sam Lightbourne under-construction 'Annex Building'. We would start with a live (ABC network) newscast at 6PM, follow that with a morning off-satellite taped one hour segment of the NBC 'Today Show', from 6.30 to 7:30PM, then a 30 minute sitcom such as 'My Three Sons' to 8PM and finally, a movie taped in Oklahoma and brought with us typically on 1/2" tape from 8 to 10PM or so.

Some of this was on 3/4" Sony U-Matic, some on 1/2" Beta or VHS. Kevin arose each weekday morning to tape one hour of 'The Today Show' off of our dish on 1/2" and the only 'live' program we had to 'hit' on weekdays was the evening ABC newscast. On weekends we used the satellite antenna to locate one or more sporting events (as were in season) and had a more ad-hoc schedule, but always ending with a movie at 8PM.

It was a blessing to have local AC power. It was also a curse. The power came from a newly installed diesel generator and while the installation was new, the generator was built in the 1930s. Moreover, the one and only local power company employee was on Provo because this was 'the end of the line' and his next step was to be fired. It would be years before we had a competent electrical engineer operating Provo's 'power plant' and the early guys were typically alcoholic, totally unreliable, stubborn as hell and very sensitive to disparaging remarks.

Of which I had several. The Sony 3/4" tape decks had been flawless in Oklahoma; on Provo they did everything but show good video. I traced this to the island's power supply which while ostensibly delivering a reasonably stable voltage (120 volts was their claim) with suitable power-frequency stability (60 hertz was that claim), in fact did neither. The voltage varied widely (sometimes wildly) and the frequency - that was a major problem.

Sony's design engineers had done something not terribly smart. To save some money, even on these $3,000 tape decks, they were using the local power line frequency - 60 hertz - as a 'reference' for the various servo motors and timing circuits of the recorder. When I dropped in a Oklahoma-bred 3/4 inch prerecorded tape, the picture wowwed and zowwed in and out of sync, turning to lines and blurs for seconds at

a time. Tapes made on Provo were sometimes better although never perfect and sometimes worse.

I traced the problem to the instability of the 60 hertz. A $20 meter confirmed that over a period of an hour the frequency of the power would vary throughout an unpredictable window of 58 to 62 hertz. Every time somebody someplace on the system turned on a major appliance, there was a 'burgle' and two things happened. The voltage dropped ten volts for a second or two, before slowly recovering, and the frequency jumped about.

When this happened, the Sony 3/4" tape machines 'lost it' and the image slid sideways, doing a flip or two as the audio went into what sounded like Donald Duck speaking Russian. Then the system, over ten seconds or so, regained its 'lock' and everything was fine. This was totally unacceptable. For two reasons.

First, we were doing a brisk business in packaged SPTS tapes covering past lecture sessions. While still in Oklahoma, Garry spent several hours each day filling orders by dubbing from the master 3/4" to Beta or VHS 1/2" - as the customer requested. I left a reasonable inventory in Oklahoma to fill orders while we were in transit and getting reset up but shortly we would need to be making copies again in quantity and Provo made tapes with a widely varying AC supply were going to be disasters when played back on a stateside VHS machine. Next, Edmund and I had already been throughout Provo shooting 3/4" tape using the Sony equipment. I had a strong commitment to using television as a reflection on Provo lifestyles certain that in the future years these 'early day' tapes would be useful for tracing the development of not just Provo but the entire country. Instinctively, without any rational reason to believe so, I knew this group of islands was on the verge of exploding onto the world scene.

My first attempt at rectifying the problem was to locate the local manager for the newly established 'Provo Power Company' (PPC). We would have frequent meetings in the coming months.

"Your cycles per second are off," I began. He took a long swig from a bottle of beer and looked at me through blurred eyes.

"So?"

I explained what it did to the TV transmissions.

"Damned shame," was his response. And another swig of beer.

A new approach, explaining about the tapes we were duplicating to fill orders in the states.

"Don't watch TV," was his next response. "Nothing but damned Yank crap." He was, I must note, British - once, long ago. "You know

what I think of Yanks?"

I should have seen this one coming.

"Yank rhymes with crap and they both smell."

Another swig of his beer. Never mind that 'Yanks' and 'crap' did not rhyme.

"So you won't be monitoring the 60 hertz rate any better in the future than now?" I asked.

"Nope. Not until my frig quits working and my beer gets warm. Then I might do something about it."

Little did I realize that this guy was as good as it was going to get at the local power company for several years. And little did he realize that in 90 days, we'd be at one another's throat.

Back to the drawing boards. The Sony designed machines were a tad unusual because they insisted on referencing their picture stability to the local power line frequency, which Sony had decided was 'always' 60 hertz anywhere in the North America region. Except of course on Provo. I used a brief very expensive telephone call to contact Bob Behar in Miami certain that he, with customers throughout the Caribbean, Central and South America might have an answer.

Behar. "Haul that Sony junk back to Miami and locate some Panasonic equipment. They run on 120 volts but internally generate their own 60 hertz reference; in fact, the tape decks actually run on a 12 volt source or connection." Good advice indeed, and with the next Hegner trip to the states all Sony tape machines would in fact go back as far as Oklahoma and Panasonic replacements would be sourced in Fort Lauderdale. I was learning that it was not just Ed Hegner that was not reliable on this funny island in the sun.

Posted on our bathroom wall:

"In our Island in the sun, we don't flush for number one."

Interpretation? Obviously, you have never lived where your family is dependent upon a roof catchment system that collects rain water, carries it through drains to a tank where it is stored for your total water needs. When you 'pee' on Provo, at least in 1980, you do not waste 5 gallons of water by flushing the toilet. 'Number 2?' OK, now you can flush!

"Can we talk, mate?"

In any developed country you would go through some sort of directory, such as the yellow pages in the telephone book, to create a list of potential contractors when building a new house. With no telephones, and no yellow pages, we also had no contractors on Provo. Well, we had one if you counted Sam Lightbourne. Sam only addressed me as

'mate' when he was nervous about something. Most of the time I was simply 'Bob'.

"Mate, we have a problem with the house proper." There was the 'annex' building, which would house our work shop, TV station, TV studio, and a couple of apartment units for the many guests we anticipated visiting. And then there was the house; where the Coopers would one-day live.

The annex had been planned as a single story building, just over 2,000 square feet. Under one end, a 10,000 gallon water tank buried in a hole to be dug in the sand. The house was to be larger, 3,200 square feet with an open courtyard or atrium covered only with screening in the middle. Tasha was already 'decorating' the atrium in her mind with parrots, island ferns, and those peculiar Iguana creatures that still lived on Provo in 1980.

"Mate, the architect has made a mistake."

"How big a mistake," I asked.

"Is that beer cold?" Sam asked. It was. In addition to never calling me 'mate' except when he was nervous, Sam also did not drink beer.

The architect was an English ex-patriot, banished from his homeland after getting into a bar room brawl over a woman and leaving behind (so the local story was repeated) a bloke with a severed artery making a terrible red mess on the saw dust floor of the pub. We'll call him David.

"There is a cost mistake," Sam began. "About 100% of the estimated cost."

Sam meant, if we do this as planned, it will cost twice as much as we had estimated. And that was before the inevitable cost overruns. Sam was right; a 'big' mistake. What David had done was to somehow mix up square feet and linear feet and then who knows how he did it, in transcribing cost per square foot he had managed to translate the numbers into some foreign-to-anyone 'standard'.

By selling SPTS to Rick Schneringer, the Coopers had sufficient SPTS down payment funds in the bank to build the annex. The house would have to wait, and we knew this going in, until Schneringer completed his payments to us for SPTS and also bought our house. With this 'news' from Sam, now we had half the money we needed for the annex. Worse yet, when we had the balance from Schneringer, we would have either enough for the annex and half the house or all of the house and no annex.

I opened my own beer as Sam used one of my yellow legal pads to draw sketches and show me numbers. Sam was not a contractor;

you can't jump from building mud huts to modern TV stations without some intermediate way stations - none of which had Sam visited. Yes, he had recently done some construction work for the Grand Turk school and yes he knew his way around hand tools and materials ordering. But he was not an accomplished contractor although he was honest, an incredibly hard worker, and quick to realize when something was wrong. This was wrong. Major wrong.

Sam already had half of the concrete block ring in place for the annex. Every bit of material, from the smallest nails to the largest timbers, had to be carefully calculated, and then ordered from Miami. Most of this would be carried by truck to Dania, Florida where it would go on the southern-Bahamas bound freighter that would eventually appear at Provo's west end where - the tide willing and the swell not acting up - the materials somehow managed to be off-loaded onto the sand bars. Then the tons of lumber and sacks of cement and cartons of nails and hurricane support bars and rebar were hauled over 15 miles of sandy track to our construction site.

The first bit of totally unexpected good luck we had occurred when Sam had two guys digging out the hole in the sand where our water cistern was to go. They had to go down only a few feet but the sand was unusually damp even down a foot or two. Down five feet they were standing in ankle deep water. As they were only 50 feet from the high tide beach water line, I incorrectly assumed they were standing in salt water that was somehow seeping through the ten foot tall sand dune the separated where the annex would be from the Grace Bay Beach. My first concern when I saw this was how we were going to keep salt water from seeping into the fresh water cistern, which would be constructed by pouring a 6 inch concrete slab floor and then building four walls on top with concrete blocks.

I need not have worried. Sam stood in the water, did the sensible thing (bending down he took a mouthful) and pronounced loudly, "Fresh water!" As nobody had ever previously built on 'Grace Bay Beach' (The $10,000 a front foot beach of 2005) there was no 'history' of what to expect. Fresh water a few feet below the sand was neither logical nor anticipated. This would change the complexion of the building project, fast.

Picture this. Cement came in bags from America (later it would be Cuban) by boat. Sand came from a local quarry (no - you do not merely use beach sand to construct buildings - too much salt and chemical content). Water - well, prior to the instant well, it had to come by truck over a great distance in a vehicle that ran only half of

the time, and seldom the half when you needed it! We used thousands of bags of cement, mixed with sand and water, to build the Annex. Water, fresh water, on the site, was a Godsend.

Also picture this. The last ingredient was rock, small rock chunks, mixed with the cement to give the dried compound some 'body'. To find rock on Provo was impossible; it was either in very large chunks or very far away and still in large chunks. In a more developed country, you would haul a scoop-bucket digger to a rock site, load up the rocks on trucks, haul them to a grater to be ground down to fine small rocks and then hauled again to the construction site. Only on Provo there was no 'big machine' to grind large rocks into small rocks; gravel, as it were. Sam's creativity.

He hired around 10 ladies from 'The Bight' to sit on the ground for 8 - 10 hours each day, each one equipped with a smallish ball-peen hammer, and all day long these women turned huge chunks of rock into small pieces of gravel. One hammer whack at a time. I shot some very illustrative video of this exercise following one lady through a full 6 day work week. She began sitting on a flat sand dune on Monday at 7AM and by Friday at 6PM her spot on the sand dune had turned into a huge mound of gravel. Which Sam then used to mix with the concrete to build 'The Annex'. In a memorial visit to Provo in December of 2002, I was greeted by many of these same 'Bight Ladies' now in their 70s who carried vivid memories of how they 'helped us build WIV TV' on Grace Bay. To each of these folk, a heartfelt tip of the hat for duty above and beyond the call of common sense!

So the costs had doubled and Sam was in a quandary. Me too. There was no magic reservoir of cash so the answer had to come from redesigning the project. It was all a matter of timing. The Annex needed to be finished not later than mid-January (1981) because we would lose our occupancy of the Marbury House at that time. 'Finished' would be a progressively translated word as we got closer to January and real finish was no closer than it had been a month prior. But before we could get to that point ...

"Suppose we turn the Annex into a bigger building, two stories?" asked I. "The money available could cover us for perhaps enough additional Annex-space to allow us to live there and still do our work until the money becomes available for 'The House' proper'." On a legal pad Sam and I worked through the night drawing and redrawing the basic foundation measurements, adding a few feet here and there because we were still at a stage where another 400 or 800 concrete blocks could be added to make the building ground-print larger with no special

hassles; it would simply be more materials and more 'chipped rock'. Of course as I was adding a second story, the chances that Sam and his ragtag crew of local workers could complete it by mid-January seemed further and further from reality.

All of this was happening between mid-September and early October, me freshly back from the Haiti-Cuba-Miami-Dallas-Oklahoma City trip. Back prior to September first, an official entourage arrived from Grand Turk to 'inspect' what I was all about. Heading it up, the British appointed Governor of TCI. They arrived at The Marbury House with almost no warning and caught Edmund and I half up and half down the 40 foot TV transmitting tower.

I was impressed because as the Governor explained, this was his first-ever visit to Provo and he had arranged the flight to inspect what we were doing. Fortunately the ADM 11 footer was functional and in 30 minutes or so I had The Guv's head swimming with dancing visions of American and Canadian TV.

"Tell me how you plan to 'share this' with the country," he began. I needed some interpretation; his British 'English' and my American 'English' were less than fully compatible. I was stumbling over the word 'share'.

I mumbled something about not being excited having 'the entire country' coming to my house 'for dinner' and 'watching TV' on Sundays (or any other day). After the entourage of officials and the Guv would leave, it would occur to me, "This has been a defining moment" in my relationship with the Turks & Caicos Islands.

"What I have in mind," he began, "is an arrangement where you would somehow broadcast your TV channel to the country; all of the country, from here." The Guv had obviously given this some thought as he outlined to me a mixture of imported and locally created television programming including time made available for education and the religious groups - which in 1980 were a formidable political force in the country. I listened patiently and then responded.

"There are two ways to do this. The first is through a network of TV transmitters, one perhaps for each of the five primary islands, and the other is through a cabling network. Either of these will cost a great deal of money and in the traditional sense of funding such a business, one anticipates the sale of advertising in return for providing a free-to-view TV service. I don't think TCI is ready for television advertising, just yet."

And his obviously pre-thought-out response. "Your plan to build on Grace Bay is before us for approval and we have an inkling of how

much you will be spending there. Suppose we waived the 33% import duty on all of your materials for a period of - say 3 years? - and the money that you would have spent on duty will then be available to build the TV station network." I did some quick mental math working out the ultimate difference in saving 1/3rd of perhaps $250,000 set against what it would cost to build the TV stations.

"Make that five years," I responded, "and we have agreement."

If all of this sounds like a logical, civilized discussion between two equals, think again. The Turks & Caicos Islands were in 1980 (and remain today) a 'dependency of the Queen'. They fall into a category of small, isolated points around the globe which until approximately (the year) 1900 were the proud legacy of the British Monarchy. Hong Kong, Ceylon, India, Pakistan, Australia, Canada - 'The British Empire'. Oh yes, including Cayman Island, The Falkland Islands, The Bahamas and the Turks & Caicos. Even in 1900 if one made a list of the 'British Possessions', you could be excused for neglecting to include TCI. I often told people I lived in 'an unlisted country'.

By 1980, the list had become very short. TCI was still there and because so few others remained, you could no longer be forgiven for leaving it off. The 'Empire' (with a capital 'E') had fostered its own peculiar British system of management. 'The Foreign Office' in London was responsible for staffing a variety of appointed posts; 'Game Keeper' in Kenya, 'Fisheries Officer' in The Fiji Islands, 'Governor' in New Zealand and 'Magistrate' in The Turks & Caicos Islands being a short list of examples. When the appointed staff, typically from as few as 3 or 4 per dependency to multi-hundreds for spots like Hong Kong and multi-thousands for India, took their 'marching orders', they came directly from London. A smart young man (I would include 'woman' here as well but there were none) fresh out of Cambridge or another 'posh' university could apply to become a part of this army of civil servants and if he had the required smarts and his family had the necessary political connections, he might indeed end up by his mid-twenties as 'Fisheries Officer' for the Falkland Islands.

The pecking order in this system was a lifestyle to itself. People bribed higher ups and slept with lower downs to gain admission to a better 'rank' in thesystem. But as the 'Empire' collapsed the demand for skilled administrators evaporated. Immediately following the surrender of Germany and the end of hostilities in Europe, Great Britain's dependent territories throughout Asia, the Pacific and Africa rushed to become independent. This left thousands of British bureaucrats out of work not only in Kenya and India but in 'the home office' as well

for each field man required something like two at home in London for 'support'. For an entire subset of British bureaucrats the collapse of 'The Empire' was the end of a life style. A Fisheries Manager from Fiji had very few real skills but as long as the 'system' continued he had the prospect that as surely as time marched ahead he would one day become something of greater administrative importance someplace in the system; perhaps even Hong Kong (the 1980's version of being 'exiled' to Valhalla).

The system was a two-way street. People with demonstrated skills (and there were some) could move ahead, first to a more important 'title' or assignment, then to larger and larger dependencies. In theory, one who began as the 'Accounts Manager' for the Turks & Caicos Islands could finish out his 'decades of service to The Queen' by becoming 'The Governor of Hong Kong'.

It is with this backdrop that I found myself standing on a sand dune only yards from one of the world's most attractive white sand beaches discussing building a network of television stations with a 40ish guy who spoke with the eloquence of Buckingham Palace itself. Have you ever heard Prince Charles speak on radio or television? Then you have our 'Guv' well defined.

With the empire shrivelling, and the intake of new young would-be bureaucrats cut way down, the percentage of those remaining who were destined for great things became smaller and smaller. TCI got them coming and going.

Those 'ascending', like our youngish Guv, were headed for bigger and better things. Those 'descending' were approaching retirement and for the next twenty years being appointed to one of the trio of posts in the TCI (Governor, Attorney General or General Secretary) would increasingly be for bureaucrats who would end their careers here; usually within five years or less.

In 1980, TCI cost 'The Crown' around US$10 million to administer; that is the entire country, not just Provo. If they spent $50,000 in Provo over 12 months at the time, I would have been shocked. That meant local revenues for such categories as 'import duty' fell shy of money spent by that amount. The Governor had one overriding directive - increase revenues so the Crown's contribution to administering the island nation would go down (not up). It was no wonder the British were constantly stirring the TCI pot quietly encouraging the 'locals' to take over their own Government and declare their 'independence' from the Crown. That would of course terminate the subsidy from 'Mother England'.

So when The Governor agreed to hand back something more than US$80,000 in import duties in exchange for my promise to provide the country with television, it was a gutsy decision on his part. And I knew that. He would post-TCI end up in an important position in Hong Kong, a move only possible when one has demonstrated to The Foreign Office unusual decision making skills.

Not every Brit bureaucrat was 'coming up' or 'going out' as they passed through TCI. Some would simply turn into an island beach bum under the pressure and stress of too little to do, a non-ending supply of liquor and a social tolerance for frequent sex with anything that walked or crawled. The Attorney General post was habitually difficult to fill.

First one had to be a qualified solicitor (attorney for our American readers). Sometimes we even got a 'qualified barrister' which is a wig of a different color. As often as not, those who were signed on for this TCI post were not a part of the general 'Foreign Office bureaucracy' scheme. Finding a 'qualified' barrister or solicitor who was willing to walk away from a profitable career in Wales, Scotland, Northern Ireland or the UK in favor of living on an outcropping of coral populated by some of the world's nicest and kindest 4th grade educated black folks was not easy. So the Foreign Office would advertise and cajole and plead for applicants and what we got were - well, those not enjoying a profitable career in Mother England.

Attorney Generals usually were running away from something - a bad marriage, civil suits charging them with malfeasance, a history of substance abuse. And the Foreign Office was desperate enough to take them, warts and all.

The primary job of the Attorney General was to draft legislation for the country's relatively new experiment in local democracy. And the AG advised the Governor on matters relating to contracts (such as our WIV TV contract to trade TV for a relaxation of import duties). In 1980, the TCI as a whole (including Provo's 600-plus inhabitants) had begun a trip down that trail where a local legislature, elected by the people or appointed by the Governor, wrote many (but not all) of the new laws/rules/regulations for the 'country'. Here is how it worked.

With the new opportunity to elect their own legislature, several political 'parties' had developed. There were the 'Republicans' (PNP or People's National Party) and the 'Democrats' (PDM or People's Democratic Movement) and a number of others that came and went with the fervor of a religious event. Initially, the British 'allowed' around half of the 14 member legislature to be elected by popular vote, and

the Governor would appoint to the body the remainder. Legislation ran the gamut from extending open hours for bars and clubs to creating rules to establish how an immigrant such as myself might one day become a 'belonger' (local citizen with the rights of a native born person).

The 'trick'. Legislation took months, or years, to go from draft form to legislature acceptance. Then it faced the ultimate hurdle; the Governor. He had the full right of veto, even after perhaps a year or more of intense effort by the native folks. And as I would learn, he took his 'marching orders' from The Foreign Office which was not beyond reach of influential local citizens such as Arthur Butterfield.

Mr. Butterfield and a handful of others with special skills and talents (and money) were always to be a 'shadow government' with a direct line into the Governor's office; something the rest of the country did not enjoy. And when that direct line failed to bring the desired results, Butterfield could make his wishes known to London and as often as not, his wishes would override even the decision of the currently-appointed Governor.

So the Attorney General was basically a law-hack, subservient to his employer and folks like Butterfield. And if he arrived at the nation's 'seat of Government' in Grand Turk with any excess baggage (such as a drinking problem), quickly identified as 'fair game'. He was addressed with great respect, to his face, but behind his back subjected to the most petty of attacks. It was not a spot for a weak man.

Which to a man they all were. My favorite reflection on how this turned a man (remember - women were not allowed into this club) into a neuter follows. Our example had been on GDT for barely a month and like everyone who preceded him he had baggage. Only his baggage was his wife, not a weakness for the bottle. At least not initially.

He had accepted the posting because his wife could not keep her clothes on. His life in Wales had been a series of 'catch-me-if-you-can' events with his wife; both were in their mid-30s. She, it was said, would flip up her skirt or rip off her clothes to anyone who showed even the slightest interest in her body. Anyone. Sometimes several 'anyone's' each day. At home in Wales he had hired a full-time 'nanny' to go everywhere with his wife to act as a minder. Which apparently worked until the nanny could no longer resist the urge to 'join in'. In desperation he had accepted the Grand Turk post.

Two months on the job and history was repeating itself. Only because she was 'white' and so readily 'available' there was a steady line of locals lining up at her manicured picket fence to ask for a job

as a gardener, 'lawn boy', or 'guide'. What our appointed A-G had done was substitute white guys from Wales with questionable morals for black guys from Grand Turk with no concept of morals.

"Hey m'on; she showed it t' me and I take it!"

So when a visiting dignitary from London missed the A-G at one of those countless alcoholic-beverages-served functions one night and went by his home to see if he was ill, it would be no real shock to find the barrister sitting all-but-naked ten feet above the ground in a sizeable tree smashed out of his mind on cheap wine and moaning very loudly for everyone to hear, "Oh - woe is me. Woe is me." Repeated at ten second intervals even while the police arrived to carry the guy out of the tree and into a straight jacket. And the next day onto an airplane to a sanity center far away.

The wife? Glad you asked. She was not heard from until a month or so later. Then she was discovered living in a remote village on one of the 'out islands' with a native who had found the just right mixture of marijuana, group sex and body piercing to turn her into a naked zombie who seemed very happy, at long last.

In all of this fun and games our business life managed somehow to move steadily onward. The SBOC (Satellite Business Opportunities Conference) which I had scheduled following San Jose for Houston was a slight detour from the established system. We still created and sold new 'manuals' around which the sessions were built but the crowd was quite different from any previous. They were far more serious minded, almost uninterested in the technology, focusing on the business opportunity. Which was, after all, what we intended.

Perhaps, if one was generous to an extreme, there may have been 2,500 operating terminals in consumer hands as Houston convened. Orders dating back to Miami remained unfilled, firms that took in large deposits and then headed back to Arkansas to work out how to actually deliver the equipment were struggling to do just that. This word was every place on the exhibit floor at Houston, turning those who arrived with check books in hand into far more circumspect individuals. There were some very sizeable orders written, but the up front payments were minimal. And secretly I was grateful for that because many of the early day suppliers were exhibiting 'take the money and run' signs that bothered me a great deal.

There was one, small but very important, 'category' attending Houston. HBO, Showtime and other programmers arrived to 'inspect' what was happening. They were not pleased as events over the coming months would amplify.

Example. From the first issue of CSD I had a small (1/8th page) advertiser called SAT-GUIDE. This was an effort by an ex-cable TV operator (who had sold out his cable system business during the dark days of the earlier 70s) named David Wolford to produce a monthly programme guide to the satellite available services. The concept was initially straight forward; obtain advance copies of the HBO (et al) schedule, put this to paper, sell subscriptions. Initially Wolford had contacted me about doing it as a partnership and conscious of our move to TCI and for other reasons I had declined the business opportunity.

HBO had mixed emotions about SAT-GUIDE. They already distributed their own guide to cable system subscribers, and by the fall of 1980 approximately twenty of the more than 100 editions of national publication TV GUIDE were also publishing the HBO schedule. And if someone was really desperate, they could tune-in the HBO channel between noon and 4 or 5PM local time seven days a week and HBO would 'roll' on the screen details of that night's programming.

HBO, at Houston, told Wolford, "Stop advertising in Coop's Satellite Digest or we will cut you off from advance programming information." Never mind that his advertising was at most no more than his showing of token support (the smallest advertisement space we sold was the 1/8th page) for the overall pioneering work being done by CSD. This was a stupid display of corporate mentality on the part of HBO. But it was not the only one.

With home satellite dishes now attracting far more media attention than we deserved (or had earned), virtually every week was a new 'surprise'. For example, in and shortly after Houston's SBOC, the Sunday newspaper supplement PARADE magazine carried a detailed story about who we were and what we were doing. NEWSWEEK did one as well and TIME magazine had a story ready to publish when somebody within the organization discovered TIME also owned a major chunk of HBO - and this 'story' might not reflect appropriately on the pay-TV service. The cable + satellite programmer worlds were beginning to come to a single mind about the 'home dish industry' and it was the prelude to going to war.

All of this was weaving in and out of my mind as Houston came to a close and Space's attorney Rick Brown joined Susan, the kids and I for an in-suite bring-it-to-us dinner. By the end of any show, it was no longer 'safe' for me to even walk into a restaurant as there would be show attendees there 'with just one more question'. I was questioned out by day three.

SPACE and Brown had already proven that a tiny, upstart group of mostly disorganized entrepreneurs could make a mark in the halls of Congress. With Brown's tutoring, a number of Space members post-San Jose had descended on Washington and perhaps by good fortune, perhaps by skill or a combination of the two the original, 'Watch this and you are dead', bill of North Carolina's Congressman Prior had vanished but not without a battle as I shall detail shortly.

I had several insider folks at HBO and Showtime still talking to me, although increasingly as HBO's attitude over SAT-GUIDE advertising in CSD illustrated, I was becoming 'the enemy'. HBO told me they considered CSD, "fanning the fires of illegal home terminals." That such terminals were not illegal, except in their narrow views of course, was fodder for discussion over drinks late in the day. HBO had expected Preyer's bill to sail through Congress and clearly establish home dishes watching their service as 'law violators'. When it did not happen, they grabbed the next available opportunity - SBOC Houston - to come in person to check the pulse of the 'illegal home dish industry'.

What they saw and heard was (to them) very discouraging. There *was* an industry happening here, begrudgingly they admitted to me CSD was accurately reflecting the growth of this industry, and perhaps they should now for the first time begin the wheels of encryption. I was a conduit to Space's Brown of all of these discussions, aware HBO was smart enough to use me as a message passer.

On the closing night of SBOC, Brown and I, over hotel suite dinner, debated how we might deflect the aggressive attacks both knew were coming. Rick, intelligently I thought, argued that the 'next SPTS/SBOC' be scheduled for Washington, DC where we as an industry could take our message directly to influential members of the House and Senate; people like Congressman Billy Tauzin from Louisiana. He further suggested that because we could be within 15 minutes of the nation's 'power center', we could also arrange some guest speakers who would attract to our meeting members of the political (read *Washington Post)* and financial (read press.

Brown the Showman

While Rick was supping with us Susan decided to pour all of our personal receipts from SBOC Houston on the king sized bed and 'do a count'. This was a family tradition which helped Kevin and Tasha learn the value of money (we thought). As Rick and I talked the plan through, Tasha made announcements. When she had '$58,000' piled on a coffee table it caught Rick's attention.

"Perhaps you should hire my law firm to supervise the Washington show?" he suggested, knowing the details of my half completed sale to Rick Schneringer and appreciating that at least for the moment I was still in charge of show decisions. And because I was facing the growing problems on Provo (an Annex building looking increasingly as if it would not be finished on time, a TV network barely underway, and the ongoing challenges of getting out a magazine to a monthly schedule by remote control), he quite correctly assumed I could use some assistance. For a fee of course.

"Come up to Washington in December and we'll select a facility." Only it was not quite that easy. A satellite show now required a hotel or convention center with adequate housing (we had reached the 500 room minimum plateau), a large area for the growing legion of equipment exhibitors, two or more meeting rooms with seating to 500 each plus, and the killer; a large parking lot with a clear 'shot' for dish antennas temporarily situated there to 'see' the satellites. Many otherwise suitable hotels lacked the mandatory 'antenna parking lot'.

Exhibitors had to be able to create antennas on a flat, paved surface, and then string cabling indoors to the exhibit halls. From that surface, no trees, tall buildings or hills could stand-in-the-way (block) the view

of the 'satellite belt' above the equator. Using a decent compass and some elementary land surveying transit mounted equipment, a skilled person could work this out from the proposed parking lot. But the only way to be absolutely certain there was no interference' from AT&T microwave towers in the region was to haul in a trailer mounted satellite antenna and an expensive spectrum analyzer device to check for the signals. This 'site feasibility study' usually cost around $1,000 but more often than not I had been able to locate a satellite installation firm in the vicinity of the proposed trade show and 'swap' the survey for a no-charge exhibit hall booth at the show.

Up to this point Schneringer had been chomping at the bit to 'take over'. But he was not scheduled to have his final payment money for the show and our home until mid-April. An argument (there is no other appropriate word) began.

Schneringer: "By the date of the show, I will be the owner and therefore I get to decide which hotel, even which town or city, and how it is run and by whom."

Me: "That all depends upon when the show actually takes place. But if there is to be an April show, and there will be, and if it is to be in Washington, and it will be, then we must make all of those decisions today - not in April. And today I still own controlling interest."

Schneringer: "But if the show actually occurs after we close on the business and the house, then the show proceeds are mine."

Me: "Only after the bills are paid for all of the facilities and services which I will be contracting for between now and the show. And only after I am properly paid for doing all of the work which I and Susan do up to the actual date of closing."

Schneringer: "OK, but will the show pay for Gloria and my transportation and lodging?"

Rick S. would prove to be a man who could not separate the trees from the forest, as you will quickly see.

This was not the first disagreement Rick and I would have over where the money would go although all of this had been clearly spelled out in our sale contract. But the 'strangeness' (again, there is no more appropriate word) of this man was just coming to the surface. Boy oh boy, would he stick his foot into the muck and mire in Washington!

As luck would have it, the FCC was late in 1980 about to announce (and we knew about this in advance) a new plan to allow 'low power TV stations' (LPTV) to be built and operated throughout the USA. Their concept was primarily fashioned by the religious telecasters, such as Trinity/KTBN, who saw an opportunity to create thousands of special

(in their case, religious) channels to serve small areas such as just a borough of New York City or a town like Ottumwa, Iowa - for example. This gave me a 'theme' for the Washington show - LPTV stations connected to a programming source, via satellite. And a new 'Handbook' for the show. As Attorney Brown knew all of the procedures the FCC was about to announce for building an LPTV station and through his law firm would be anxious to 'represent' these applicants in their FCC application process, I suggested he co-author with me the 'Low Power TV Handbook' which would be first released at the Washington Show.

And because Schneringer was 'acting weird' I made a unilateral decision to shift the primary organizational aspect of the show from Oklahoma to Brown's law office in Washington. In return Brown would extract a fee for his office's work, collect a percentage of the receipts for the 'Handbook', and be totally responsible after my initial visit and approval of the headquarters hotel site for all of the on-ground arrangements. I left Schneringer to handle those reservations that came directly to STT in Oklahoma and to manage the sale of exhibitor space. Brown in return promised to line up 'name speakers' for the Washington Show and before Christmas had already arranged for activist Ralph Nader, FCC Commissioner James Quello, Fritz Attaway from the Motion Picture Association of America (MPAA), and Congressmen Charles Rose (NC) and Billy Tauzin (La). All of this announced months in advance of the mid-April gathering positively guaranteed another sell-out show. And some of the most fiery oratory ever heard at a satellite industry conclave.

Crawling to a January deadline

During the construction period at Grace Bay, while it would have been very helpful to have power from Provo Power Company at the site, the more than 3 miles of electrical line required was simply too big a project for the rather-drink-than-work PPC manager. We of course were to pay for the 'line extension' under some sort of half-baked scheme which would see us being refunded for the cost, in increments, as other users along the way passed by the line signed on board (at the time it was passing over undeveloped sandy ridges with nary a road or building in sight; by 2005 this 'line' passed hundreds of homes, condos and nearly a thousand new hotel rooms). So Sam Lightbourne made do with a series of on-site portable generators to operate the power tools and the 12-16 hour per day operation of the smallish backyard style concrete mixers.

But as we returned from SBOC Houston the fact that the power line extension construction had not even begun was a worry. I knew where to find the PPC guy; the local pub at Third Turtle Inn.

"Have the supplies arrived (on Provo) for the power line extension?" I asked with the most diplomatic tone I could muster.

"Nope," was the response.

"Any idea when they will arrive?"

"Nope."

Before Christmas?"

"Don't know."

"Can I have the name of the firm supplying the materials - perhaps I can expedite their delivery here?"

"Nope. You stay out of my business." The emphasis was on "my."

"Can I have a copy of the work order then - perhaps I can locate an alternative source?"

"Stay out of my business. You damned Yanks think you run the world." Now the emphasis was on "damned Yanks."

OK - I knew enough about what had to happen to work it out myself. Edmund and I drove the Blazer cross country through the rock and scrub to measure the distance following the route that we knew was logical. Then I got on ham radio and talked with Bob Behar in Miami requesting him to call around Miami to locate the required power cable and attachments. The original agreement with PPC, involving more than $10,000 in my cost, was to have power poles installed along rights of way and the wires would hang from the poles in a conventional manner. However, there was another way; simply lay the power wire on the ground for a couple of miles. We would be crossing no streets and no traffic would drive over the line simply because it would be going cross country. A couple of sizeable transformers would be involved - one at the origin end of the line to raise the voltage and thereby reduce the voltage loss in the temporary on-ground cable, another at Grace Bay to step the voltage back down to the 220/110 volts we needed for The Annex.

A $1,000 "deposit" had been made with the signed PPC agreement but I still held the bulk of the cost in our Miami bank accounts. Which got me to thinking - perhaps the reason nothing was happening with the PPC manager involved him being unable to pay for the supplies. PPC owed money to a large number of locals - why not also off shore where their wire and supplies originated? Back to The Third Turtle Inn bar.

"Can we talk about an alternative way to get power to Grace Bay?"

"Talk."

"Suppose I buy the material to get the power to the site, and temporarily we lay the cable on the ground across country until you can get poles set and the lines installed above ground. Suppose further I do all of the work - run the cable across country, and provide two transformers for the ends. All you have to do then is come along and connect us to the power line in The Bight at the transformer I supply?"

"Could work."

"And then when you do go above ground with your own wire, I'll make you a really good deal on buying the temporary on-ground cable from me."

"Maybe."

"Do I have your permission to order in the wire and transformers,

then?"

"Buy me another beer and we'll talk."

So here we were pushing hard on Christmas, at the time a minor holiday on Provo since no stores existed and the tradition of exchanging gifts was foreign to the natives. This would be another 'defining moment' for the residents on Provo. At this point, December 1980, the number of television sets had mushroomed to well over 100. Not a big number? This on an island of fewer than 700 people. Remember - these people had never been to a movie, never previously seen beyond the shores of their coral island, and the only radio they could receive spoke Spanish or French.

On Saturdays we programmed WIV-TV through Atlanta's WTBS because of their 'professional' wrestling done live out of their studio there. This WTBS show was the highest rated Atlanta production, perhaps their highest rated of any show, on the air. Provo's native population became totally immersed in the wrestling hype and their perception of reality was what you might expect from a group of people who had very limited schooling and no grasp on how the 'industrial world' functioned. Imagine you had just stepped off of an airplane from the mountains of Papua New Guinea and the first sight that greeted you was a bank of television receivers showing 'professional' wrestling. Is this America??? Of course - it is on TV!

At 6PM Saturday evening you could walk through any native settlement and not one human being would be out of doors. If you went to the bar at The Third Turtle Inn, it would be chocker-full with black and white guys (no women in that era) wild, screaming wrestling fans. The entire island 'stopped' for WTBS wrestling; not that Provo would be doing much at 6PM Saturday anyhow.

And now the amusing part. Because the native settlements did not yet have the benefits of electricity, virtually every TV set imported (by Ed Hegner of course, who seldom missed a commercial opportunity) was a 12 volt battery set with a smallish screen. To run the TV set, a car or marine battery, also imported by Hegner. With WIV-TV on the air 4 hours daily through the week and up to 8 hours a day on weekends, the natives had already learned battery conservation. Only months after we began telecasting, it was so important that the TV set work at 6PM on Saturday night and through the often two-hour WTBS telecast that boats and vehicles were stripped of their battery for that period.

A newly arrived American, Gil Acquino, had opened a one-man garage and of course in his precious but limited tools there was a battery charger. Well, there was *one* battery charger initially. By December

there were more than a dozen chargers and on Monday morning, one would find as many as 50 car batteries stacked up all around the shop either being recharged or waiting for their turn. Acquino, taking a page out of the 'Ed Hegner Provo Business Manual', had worked out a scheme to sell 'priority recharging tickets' - prepaid in advance no less and those who had the prepaid tickets moved to the front of the line. By Wednesday, a large number of wanting-to-be-charged non-priority batteries would still be waiting their turn.

When we would eventually open a WIV-TV office a year later at a newly established (Provo's first) liquor store, people trooped in from throughout the country to stand in some awe studying the WTBS Wrestling Posters which I had arranged through Ted Turner's office. The posters provided something approaching a 'monument' of complete reverence to Provo's residents as these fans stood mesmerized by the large-as-life wrestlers on the wall.

It was because of this and more that 'Mr. Provo Power' made a huge tactical error when he decided, quite on his own and perhaps only with the benefit of a case of beer for counsel, to become a hard-nosed SOB immediately after Christmas. The miles of power cable and transformers had been located and with considerable effort shipped to Provo. Edmund and I had unrolled the wire using the Blazer and trailer to work our way through the coral crusted bush sand hills and now we were ready for what amounted to perhaps five hours work. The time had arrived for Mr. Power to connect the end of the ground laid wire in The Bight to his system.

"Can't do that," he stammered.

No amount of discussion would dislodge him. He abruptly turned his back on me and disappeared into the Third Turtle Bar.

My next stop was Art Butterfield, the native with the most power to make it happen. Unfortunately, as it would turn out, Art was having his own 'war' with Mr. Power and after having two (of two total) commercial freezers burn out (Art was an excellent refrigeration mechanic in his youth and he knew why they quit), was ready to send the guy packing. Which Art could have arranged but that would have left us with no Mr. Power of any kind - even a bad one.

OK - I had two, three at the outside weeks to get power turned on in Grace Bay. Because the Canadian Marburys would be arriving, we would be out of their home and it was in their home where the TV station now was housed in Kevin's bedroom. I had two generators at Grace Bay but that seemed like caving in to Mr. Power - and one heck of a difficult way to operate. If Provo electrical power was 'bad' and

undependable, living off of gasoline generators full-time was several steps closer to hell.

That evening I went on television, sitting in front of our color camera, on the sand bar next to the 11 foot ADM antenna. And I explained the situation to those who had tuned in to watch the ABC Evening News but saw me instead.

I came to the bottom line:

"So, on January 1, two weeks shy of when the Coopers must be out of this house and at Grace Bay, we will turn off the TV station. It will stay off until we have power at Grace Bay." And I reminded the viewers that there was, "at most, five hours of work by 'Mr Power' to be done to get power to Grace Bay."

And then we joined ABC Evening News, as they say in the trade, "...in progress."

The next day everyone I saw had a first or second hand story to tell me about their impressions of my 'Newscast'. Several, including Art Butterfield, suggested I repeat the transmission "instead of wrestling on Saturday" and that seemed like an excellent suggestion. And I did.

Now, virtually everyone on Provo saw it and even before wrestling ("...joined in progress") was over, Mr. Power arrived in my driveway. I have seen people mad before, I have seen people who have totally lost self control. Nothing previously witnessed came even close to this blithering, totally out of control drunken idiot screaming epithets and threatening to annihilate my family including digging up my grandmother's grave.

One line will stay with me to my own grave.

"You and your gawd damned Yank TV station can suck my butt - you will never get power!"

When Saturday's TV programming was over I punched up color bars (a test card) over which I superimposed text of the line just quoted and then displayed the unlisted recently installed telephone number for the at home phone of Mr. Power.

He lasted three days and a few hours. Stubborn, totally drunk much of that time, unable to leave his home, unable to answer his telephone (irate callers began with, "suck my butt Mr. Power!") he finally sent a messenger to advise me, "Your power will be operating at 6PM tonight."

And so it was. The power of television?

Probably not. Word was he ran out of beer, could not show his face to purchase any more, nor go to The Third Turtle Bar. He got the shakes, and gave in.

Who's on first?

January 1981. By this point three of the home dish system satellite receiver manufacturers had, individually, worked out how to ship respectable quantities of receivers each month. KLM, born under the star of David Barker's 'image reject mixer' scheme first shown at San Jose, was one of these. ICM, the Oklahoma city firm headed up by Royden Freeland and who had been instrumental in the success of the first SPTS, was another. Young John Ramsey at Sat-Tec in Rochester, New York - who a year prior was assembling parts kits on his folding card table, was the third. Between them, as CSD reported in January, upwards of 750 new receivers each month. Another dozen or more receiver builders probably added 500 to that number; an annual rate approaching 15,000. It would be 18 months and we would be hitting 15,000 per month (rather than per year).

One very daring young entrepreneur, Bobby Kaylor of (where else) Arkansas, had arrived at Houston after squirreling away 50 complete home systems (antennas, receivers, LNAs and attachments). He promised 'off the truck' delivery and with more than 1,000 in attendance, his truck was empty in the first few hours of exhibit hall activity. All of this commercial activity was correctly interpreted by HBO, and other programmers, as a 'serious problem in the making'.

January's CSD announced Henry Taylor Howard as the 'Home Satellite Dish Industry's Man of the Year'. I could do things like that, arbitrarily making such proclamations, simply because it was my magazine and as the only publication in the young industry, we had leeway to pretty much do as we thought appropriate. Tay's choice was half political, half common sense.

When I first visited the man at his home in San Andreas, California (May 1979) he was more than willing to show off to me his home built receiving system and have me hang around as a house guests for several days. This was pre-home or industrial version camcorders so to properly put 'his story' on tape more than 200 pounds of non-portable 3/4" video equipment was shipped as excess baggage. The resulting tape master would be used, reedited and reused for the next decade.

Taylor and I shared a common bond, amateur radio; his ham call sign W6HD marked him as an 'old timer' in the hobby. He had come to my attention through another fellow ham who happened to live in the same Sierra Nevada foothill country east of San Francisco. It also happened that San Andreas was the only town along highway 49 between Placerville and Sonora which I had bypassed while building cable TV systems with my school-chum John Markovich in the 1964 -1968 period. At the time, the town never 'felt right' for cable because with modest rooftop antennas decent reception was possible from not only the San Francisco but Sacramento stations as well. We had, however, borrowed a sizeable amount of money from Bank of America and some investors to build the Angels Camp, Sutter Creek, Jackson and Placerville systems. So I knew San Andreas intimately having lived around it and driven through several times each day for many years.

Taylor's primary qualification was an intense curiosity about new technology and his several decade history of being associated with Stanford University in the Department of Electrical Engineering. Like most ham radio operators, including Robert Coleman in South Carolina, Tay had almost infinite resources for accumulating once-expensve, now-outmoded electronic equipment. One of his many collected artifacts was a shipboard radar antenna system which had once been used on a US Navy destroyer. It was resting, in a significant state of decay, behind a shed on his rural acreage above San Andreas when a student at Stanford drew his attention to something 'new' in 1975; a Westar satellite which was alleged to have TV programming.

When I arrived in May 1979, the antenna had been resurrected, outfitted with some home-brew parts Tay had created with the initial assistance of H. Paul Shuch, a fellow ham and fellow advanced electronics teacher living in San Jose. Shuch and Tay would vie for 'top designer honors' throughout 1979 and well into 1980 in the young industry and because they shared so many common interests and lived only 100 miles apart with the ability to talk directly using ham radio at will, it was difficult - impossible perhaps - to determine where H. Paul, or, H. Taylor innovation began and stopped.

On the same California trip I first visited with Shuch. He was (and remains today) a very interesting and challenging individual (today he heads up SETI - Search for Extra Terrestrial Intelligence from his home in New Jersey). Two years prior to the 'launch' of the home satellite industry, he had begun designing circuit boards which individually performed one or two functions in what ultimately became a plug-together-and-play satellite TV receiver. Paul's unique abilities included a passion for extremely well manicured microwave circuit boards, at least equal to the best commercial products of the day. Tay's passion was almost 180 degrees out of phase; clip leads of wire strung across walls, down benches, through windows to fabricate 'temporary' connections. Paul was from a school of engineering that believed, 'microwave technology must be neat and orderly to function properly', while Tay was always in too much of a hurry to move from 'breadboard initial design' to a finished, commercial product. Before the end of 1980, much of Paul would rub off on Tay because Howard discovered there was very decent money to be made by consulting for would-be manufacturers of home satellite receivers; far more than he could ever expect to earn at Stanford. Tay's clip lead approach worked well enough in his own garage but did not translate well to production line replications of an initial receiver design.

Taylor Howard in later years would recount several stories which in my opinion glossed over some important details. For example, when I visited his home he was just coming out of a very debilitating session with his original wife. She had developed a psychological problem or two and ultimately had been institutionalized leaving Tay with teen age children to rear. As a Stanford Professor, he had been able to reduce his teaching time commitment allowing him to commute in a single engine plane the 100 miles to Palo Alto on a schedule that the University agreed was adequate to maintain his teaching status while still allowing him to deal with his family crisis. A new woman had entered his life, and their combined families were just getting accustomed to one another in San Andreas when 200 pounds of video gear and I arrived on their doorstep.

As his house guest, our initial conversations spread over three days focusing on my concept of what was about to happen in the home satellite industry and the part which I suggested he might play in that 'satellite awakening'. With the legacy of a Stanford Professor and the lifetime experience of ham radio, he had put together a professorial engineering paper describing the 'state of development' for his satellite TV receiver. Not many people if indeed any had a better grasp of

the various commercial satellite receiver designs then available than I, and as I poured over his receiver thesis paper it was apparent it could become an important tool for the first stages of home dish system development. We debated the merits of his written paper, he insisting that it be more like a doctoral thesis and I equally adamant that it needed to be rewritten as if it was appearing in the popular amateur publication known simply as 'Ham Radio'. My approach was 'nuts and bolts' and his approach was, "first we teach you what satellite TV is and then we describe a receiver in just enough detail to show that it can be done by a skilled reader." I wanted 'skilled reader' to be, 'typical ham radio-skilled reader'.

It took me three days to convince him my approach was the correct one - that he was not setting out to 'impress' readers with his status of Stanford Professor, rather his goal would be to 'teach them' enough to allow them to duplicate his work on their own. I wanted the 'mystery' of microwave reception revealed in straight forward common language. His first 'Howard Terminal Manual' would by the initial July Oklahoma City SPTS be a cornerstone in the launch of the industry.

A similar effort to convince H. Paul Shuch to create his own manual failed utterly. Paul was several steps ahead of Taylor at this entry stage because I had hooked him up with Royden Freeland at International Crystal Manufacturing Co. (ICM) , an Oklahoma City firm hoping to build and unveil at SPTS a satellite receiver. Royden was another ham (Gawd - was there anyone involved in the early days who was not a ham?) and living less than 20 minutes drive from my rural home had hung out with me for more than a year developing a sense of where all of this might be headed. He and another common ham friend, Jay Liebmann, had quickly located surplus dish antennas and, using the extremely modern laboratory and prototyping capabilities at ICM, were closing in on commercial receiver product. What they lacked in advanced microwave skills H. Paul provided, for a fee. And because Shuch was making money with his specialized knowledge and experience, he had no interest in 'giving that knowledge away' in printed form by creating a manual for SPTS. Which was fair enough, but it took Taylor a few months to work out that if he quit using clip leads to connect his parts together and graduated to 'finished product design' he too could be collecting nice checks from firms such as ICM.

Taylor's more immediate problem was to make a decision concerning where the next phase of his life might be headed. On the one hand, being a 'Stanford Professor' was pretty nice and carried with it at least a hint that he was a superior being to the average guy in the

street. On the other hand, his personal life had been 'hell warmed over' (as he once shared with me) for pretty much all of the prior five years and by gaining concessions from Stanford to deal with his version of hell, many of the regular strings that bound him to the university had been badly stretched or broken. In truth, his lifeline with Stanford was tenuous at best in May 1979, his new wife-to-be Annie was settling in, and he had tens of yards of clip leads strung through a garage workshop that, with some optimism, "could become a workable satellite receiver which others could duplicate."

We tolerated one another. He told people privately, "Coop is street smart but not brilliant," and I smiled when I heard that comment. He would die (in a most unfortunate crash of his private single engine plane near his home in San Andreas, December 2002) at age 70, a man with far greater personal wealth than I. He was motivated by a different set of passions and we would over the next decade clash on many occasions over his version of 'the truth' and my own journalistic integrity. In other words, while I may have self-proclaimed H. Taylor Howard to be the 'Satellite Industry Man of the year' in January 1980, that did not mean then or after that I held him in particularly high esteem.

When Rick Brown and I convinced Taylor to accept the position of President for the launch of trade association SPACE during the San Jose SPTS, it was a no-brainer decision. In the months that followed, as Brown led Howard through the halls of congress to bang on doors of influential Congressmen and Senators, there was a special 'glow' surrounding the California man when he was introduced as 'The President of SPACE', even if nobody shaking his hand had any concept of what 'SPACE' (or S.P.A.C.E.) did or stood for. It was a personal 'high', being shepherded through the upper echelons of Washington, and having people who pretended they were so busy that their personal assistants had to schedule their 'pee breaks' days in advance, would stop and talk with him.

It was sometime during this period that Taylor and Rick laid the foundation for one of those 'little indiscretions' that would haunt me for more than a decade to follow. It involved 'being first'.

As Taylor's stature grew, SPACE's promotional literature began to refer to him as 'The father of home TVRO' (TVRO? TeleVision Receive Only, an acronym for a satellite reception antenna system). I queried Brown about this and he sloughed it off on Taylor's statements to him as having 'been the first to build a home dish system'. Naturally I took some annoyance with this statement.

It had been my decision during SPTS San Jose and SPACE's formation pool side at the Hyatt Inn to back away from the politics. It was now apparent to me that the battle for individual homes acquiring the legal right to access, for a fee, the movies of HBO and other cable-premium programmers, was going to last many years. Coop's Satellite Digest, unlike CATJ before it, needed to be 'outside the direct influence' of the trade association (SPACE), I believed, or my own creed of journalistic integrity could be compromised. I knew how Rick Brown operated, and accurately foresaw his skyrocketing to become 'leader of the pack' very rapidly. I could see no way to become involved in the inner workings of SPACE (beyond my agreement to serve on the initial Board of Directors; a given) without having Brown and the SPACE Board dictating to me what I could and could not report in CSD.

Further, Brown was already hinting that, "the trade association should be the owner and operator of the trade shows," which of course would be in direct conflict with my then-private ownership of same and my ultimate plan to sell that business off to allow Susan, the kids and I to live in the Turks & Caicos Islands.

So Brown's plan, and I do not fault him for it even today, was to slowly ease me into the background and in my place raise the flag of Taylor Howard. Rick, unlike Taylor, thought me "brilliant *and* street smart" and it was the latter that primarily concerned him. It was with this plan in mind that Taylor Howard was widely proclaimed to be "The father of home TVRO."

I took my questions to Taylor after standing off to the side while he was being interviewed by NEWSWEEK magazine during SBOC Houston.

"I checked recently to see when I first saw satellite TV," he began. "When my teenage children and I resurfaced the original US Navy radar antenna it had to have a concrete base to hold it up. I had scratched into the wet concrete a date (June 1976). That does, I believe, establish me as having the first home dish system - a few months ahead of 'others'."

That story would become more refined over the next several years, oft repeated, with progressively more polish. Several aspects of this insulted my intelligence. Firstly, when I had visited H. Paul Shuch and Taylor in May 1979, the pictures he was receiving were significantly below my own at home in Oklahoma, at that time. So nearly three years down the road from 1976, Taylor's results were - well, 'amateurish' whereas mine were totally of commercial quality. And I was doing it with much smaller antennas than he, correctly indicating that my

system was technically superior to his own by several orders of magnitude. OK, so perhaps he had a picture (which he admitted in print in 1980, "the first picture was awful, by today's standards"). What about the time line?

In June 1976, England's Steve Birkill had been receiving satellite TV intended for the subcontinent of India for more than a year; a fact widely documented with printed reports written and distributed by Birkill at the time. OK, so perhaps Taylor meant, "The first American home TVRO." Perhaps.

But wet concrete inscribed with a date when it was poured does not in any way validate that the antenna which went on that concrete pad, when dried, was connected to a working satellite receiving system in June 1976 or even June 1977. So we are down to Taylor's undocumented, "The first time he saw a satellite picture," recollection.

Fast forward now to my visit in May 1979. With my not-very-portable video equipment and a trusted Canon 35mm camera I shot many hours of video and ten rolls of 24 and 36 exposure ASA 400 film. Of every aspect of his system including the ex-Navy surplus dish. It occurred to me that perhaps in that collection I would find a better answer to the question.

Now, it happened that when Brown elevated Taylor to, "The father of home TVRO," his behind-the-garage ex-Navy antenna had been superseded by significant new construction. And the 'remains' of the concrete pillar on which he would eventually claim had been inscribed the concrete pour date was at best in tatters. But not my on-site-shot video or a roll of film spent while photographing every aspect of the original antenna. Both of which I retain to this day.

Not one hint of such in inscription in May 1979. Nor when he spent hours on videotape describing his system including the antenna was there any mention of the sequence of events other than it having been HBO which he initially 'saw' with his first system. Of course my May 1979 visit was prior to his being declared 'the father of home TVRO' by Brown's SPACE public relations agency and he had no reason to want to 'validate' his 'entry date' at that time.

So who was the 'first' to have a 'home TVRO?' The answer is, 'none of the above'. Rather, it was the one individual who should in fact be most logically 'the father'; Arthur C. Clarke, in Sri Lanka. Here is the true and accurate story.

When the Americans created the ATS-6 experimental satellite, for which Steve Richey and I devoted an unusual amount of time, it was originally designed as a 'show vehicle' to illustrate-by-doing what a

satellite relay system could do for a country or segment of the world. After the initial tests involving educators in the Appalachians and Western States, ATS-6 was moved along and around the equator to a location due south of Sri Lanka. From here it would be able to transmit a single TV channel using a special onboard UHF channel for India. The date was mid 1974 and preceded by nearly one year the first Western Union Westar (I) satellite.

Nearly one year later, Steve Birkill near Birmingham, England would build a receiving terminal to receive this UHF-TV channel directed at India. But before this happened, a crew from the Indian Institute of Technology (New Delhi, India that is) packed up a 4.5 meter (15 foot) antenna, a receiver and associated electronics and flew them to Colombo, Sri Lanka to be installed at 25 Barnes Place; the home of famed science fiction author and stellar clairvoyant Arthur C. Clarke. I and 25 enthusiastic American (and Asian) satellite devotees would visit Clarke there in 1983 and install for him 3 significantly-large satellite terminals as 'gifts' from a grateful American industry. But that is once again ahead of the time line.

The Indian gift to Clarke would all happen approximately 9 months prior to Birkill's home terminal experiments, and even by Tay Howard's recollections and concrete inscribing 'trick' predates his efforts. Not to speak of my own.

Definition time. Arthur C. Clarke is an individual. He owns his home. This was installed at his home and with it he received (although hardly enjoyed - something we'll investigate later) the Indian ATS-6 transmissions. All other installations done for ATS-6, in India, were 'community collective' installations- several hundred created to receive the transmissions, fed them to a single TV set in a community center, as a 'demonstration' of satellite-to-earth technical capability. He therefore owned and used the very first *'home satellite terminal'* in the world. End of claims as to 'who was first'. Rightfully, the man who postulated direct-to-home satellite TV way back in 1945 was the first. In the end, justice is done.

Now as to 'father?' There are other claimants. Dr. Yoshihiro Konishi of Japan is one. He would be amongst those traveling to Sri Lanka with me in 1983 to visit Clarke. Dr Konishi would also visit me on Provo (July 1985) and his then-employer (Uniden Corporation of America) would make a strong argument for his 'father status'. Dr Konishi was the man who created the very first design for mass-production home satellite receivers. He did this in Japan in 1979 but he did this for a satellite frequency band (called 'Ku' in the trade) for which

there were no operating satellites at the time. His employer's claim was good, but missed the mark.

Naturally I believe that it is I, Robert Britt Cooper, Jr., who correctly should be identified as the 'father of home satellite TV'. My reasoning, which is not totally my own, is as follows.

There are inventors and there are entrepreneurs who turn an invention into a common household commodity. A number of British mathematicians and physicists postulated and discovered the ability of energy to transmit or radiate 'through space'. But it was the Italian youthful entrepreneur Marconi who took their 'invention' into the practical realm. Similarly, Germany's Nipkow invented the concept of sending images through either a wire or space in 1884; but it was a succession of American and British entrepreneurs who 30+ years later turned his 'invention' into moving images and accompanying sound on a screen in the home.

'Invention' may be the incorrect word for this discussion which seeks to define what individual or individuals turned the already existing technology of satellite television delivery into a 'consumer, home useful' product. If we are intent upon finding the equivalent of Nipkow, there can be but one answer: Arthur C. Clarke. For it was he who in October 1945 created the mathematical theory and engineering fundamentals for the geostationary satellite system. Clarke's Wireless World thesis, from which all else flows, very distinctly foresaw the use of small dish antennas at individual homes receiving the 'space relayed' transmissions. In 1945 I was 7 years old and while precocious for my age, hardly able to envision something of this magnitude.

During the early 1970s, the technologically advanced nations of the world convened a gathering called WARC which translates, 'World Administrative Radio Conference'. Like a mini-United Nations, WARC members send engineers and politicians to debate and define how the world's available radio spectrum will be utilized in near and mid-term future. There were two WARC gatherings in the 70s and both very pointedly identified a particular segment of the microwave radio spectrum to be 'set aside' or 'reserved' for the singular purpose of transmitting from earth to satellite and satellite to earth, to 'small' home style dishes. This segment of the spectrum is known as 'Ku band' (or, between 11,000 and 15,000 megahertz). The first operational test Ku-band satellite capable of delivering television to homes would not be available until 1983 and it would be the late 1980s before such satellites were available in sufficient quantity to make this kind of service possible.

At the same WARC meetings, a lower frequency microwave band,

known as 'C' (3,700 - 4,200 megahertz/MHz) was designated for a different purpose; interconnecting widely separated points on earth. Nobody at WARC ever envisioned 'C-band' satellites being used for direct reception by individual homes because the engineers attending WARC were totally convinced these 'low transmission power satellites' simply could not be received with home size reception antennas.

So, while these educated and degreed engineers were advising the WARC nations 'C-band will not be useful for anyone using a reception antenna smaller than (18/13/11/9) meters in size', the (American) Federal Communications Commission was responding to pressures brought to bear on them by my appearance before Congressional Committees and the monthly attacks appearing in CATJ magazine, by eliminating all rules proscribing minimum antenna sizes.

Taylor Howard in a 1984 event recorded for television:

"I did not have the vision of others, Cooper in particular, about where all of this was headed. It took me a year to realize that this revolution held the potential to be even more important than the invention of the Guttenberg printing press. Cooper dragged me, almost kicking and screaming, out of the hallowed halls of academia and reflecting on the past five years I must say I am pleased that he did."

My own perspective on C-band capabilities was of course significantly more optimistic than the WARC engineers or, as it turned out, Taylor Howard. In the same month WARC delegates were reconfirming their position that C-band required a dish antenna of at least 9 meters I was demonstrating to a gathering of Oklahoma cable TV system operators reception on my backyard 1.8 meter antenna. Sometimes one can be 'burdened' by having so much 'expertise' at the fingertips that conflicting information is lost 'in the noise'.

The President wishes to meet you

Jean-Claude Duvalier. In his mid-20s, now the 'President' (for life - his or the country, whichever ended first) of Haiti. And he wanted 'world television' in both his palace and the summer ranch.

A sleek two engine Cessna of modern design bounced to a stop on Provo's precariously rutted sand and coral strip and immediately attracted local attention. Painted on the side, 'Haitian Air Force' or something amounting to that message in French. By air, Provo was just under 100 miles north of Haiti's second largest city, Cap Haitien. Haiti and the Dominican Republic share a medium-size island and the DR uses Spanish while Haiti is French speaking. The United States has 'meddled' in the internal affairs of both for hundreds of years and while the DR is above the poverty line (although not by much), Haiti is the poorest nation in the western hemisphere.

"I am Captain Philippe Bayed of the Haitien Air Force," the handsome young man of mixed genes said to me in nearly flawless English. "I have been instructed by President Duvalier to visit you and ask for your help with a project he has in mind."

And so began my relationship with Hispaniola and heads of state. Captain P was a keen observer with a technical mind that quickly grasped the significance of each element in a satellite reception system.

"I am instructed to invite you and your family to visit with the President in Port-au-Prince where he will ask you questions about establishing a similar system to WIV. He has in mind engaging you as a consultant for the project."

I excused myself and discussed the proposal with Susan. Philippe had urged us to spend 'several days' in Haiti, Susan did not like the

sound of that having recently been introduced to a small group of Haitians who had landed on Provo's shoreline in the dead of night. We settled on a 'day trip'.

On the appointed day, local pilot Howard Hamilton agreed to fly us to Port-au-Prince and hang out at the airport for a late-day return. We had to be back on Provo before dusk simply because there was no safety in landing in twilight or darkness there. Hamilton had worked out a system using a couple of cars and their headlights to mark the two ends of the dirt landing strip but this was not an advisable procedure except in dire emergency.

Landing in Port-au-Prince was an adventure of National Lampoon character. Howard's French was worse than mine and the control tower personnel showed no interest in speaking English. So we circled the dishevelled tarmac runways pondering what their French words meant. Abruptly, the unmistakable tones of Captain Philippe appeared in our speaker and we were given precise no-nonsense instruction.

On the ground, Susan and I were overwhelmed by an entourage that seemed to stretch forever. One French name followed another followed another, quick grasping of hands, and at the end of the line a battered but serviceable Mercedes Benz awaited with open doors. As I ducked my head to take a seat Howard Hamilton was at the rear of the just-passed-by line of people who had received us. I shouted out loudly, "Don't you dare leave without us!" He smiled that broad gleeming all-teeth response and raised his thumb high into the air. Being 'left' in Haiti was not on Susan's list of 'things to do today'.

Our Benz trip was to a government office building where another line of welcoming French names waited for us. Captain Philippe now attached himself to my side and whispered into my ear.

"Would Madame Cooper and the children like to go shopping? I have arranged a shopping tour and anything she wishes will be paid for by our government." If that sounds like Susan had won the $64,000 jackpot, think again. Haiti in the 1980 era was a world of horrendous poverty, not that it has changed significantly in the ensuing decades. Tasha of course enthused about being able to 'shop until she dropped' and not having a parent tell her she could not afford this or that object. Kevin would later report to me he saw, 'not one single computer device for sale in any store or shop', and after watching his sister's shopping bags fill and refill numerous times, finally elected a Haitian wood carving which would in the next few years disappear into a pile of sawdust; no extra charge for the termites that came with it.

My fun was still ahead.

"We have a problem," began Captain P. "Your attire," he began, cautiously, "is, well, not suitable for The Palace."

I should explain that shortly after we arrived on Provo, I threw out most of my stateside clothing and replaced it during a day long Miami + Fort Lauderdale shopping spree with Caribbean style shirts, knee-length Bermuda shorts, and sin of all sins, open sandals. In other words, while I was clean and neatly pressed, I looked like any other ex-pat white guy who lived on a tropical beach in the Caribbean.

"We have two choices," Philippe continued. "We can make you some new clothing which is acceptable for Palace occasions, or, we can shift the meeting from The Palace to The Summer Palace. What you are wearing is borderline for the latter but manageable."

It was around 11AM and according to the printed French schedule I had been handed, our meeting with President Jean-Claude Duvalier was scheduled for 1.30PM.

They would try option one - making me a suit of clothing by 1PM. An army of tailors and assistants appeared within 15 minutes and I outstretched my arms while short, underfed, sweaty black guys with worn tape measures ran their hands up into my crotch and spoke rapidly in their native tongue to the assistants who were jotting down numbers. Then the tiny army of workers disappeared down a hallway and a new group arrived. Instructed to remove my sandals, a piece of cardboard was placed under each foot and a new fellow used a badly frayed stub of a pencil to drawn an outline of my foot. And he and his assistants disappeared as well.

"Would you like to visit the TV station while we wait?" Captain P asked.

"Actually, no," I responded. "But I would like to visit the cable TV system operation."

Haitian TV was on a par with the poverty of the country. But back during CCOS 78, the infamous effort to uplink to satellite from Oklahoma, we had a guest from Haiti's cable TV operation. I asked if Raymond Garnier was still associated with the system and could we visit him. He had impressed me greatly in Oklahoma, and his cable TV system which existed by transporting early generation French language videotape and film from Paris and Montreal reportedly had as many as 10,000 subscribers; a very impressive number.

"I don't think so," was the guarded response. It was an answer to both portions of my question. Not there, no visit possible. Anytime a cable man lands in a new community where cable exists, much time is spent with your neck cranked back at an angle searching out the

telltale signs of cable TV wires overhead suspended by power or telephone poles. I had glimpsed several sets of cable equipment in our drive from the airport and my instant impression was that of a worst case scenario involving something built 20 or 30 years prior in a West Virginia coal mining town; totally dilapidated and very vulnerable to 'climb the pole and hook myself up' piracy. Not that Port-au-Prince's telephone and power utility services looked any better. Haitians had worked out that anything capable of conducting electricity, including clothes line wire, could be pressed into service to tap into either the above ground suspended power lines, the telephone junction boxes or the cable TV lines. For every 'factory authorized' installation I could spot as we drove the streets there were several 'illegals'. I asked Captain Philippe about this.

"As you know, this is a very impoverished country. People do what people will do when they are desperate. If climbing a wooden or metal pole to attach wire to electrical lines will give them a light bulb that works or a TV set that shows pictures, they will do it without hesitation."

The personal safety issue - especially as related to the help-yourself-to-electricity routine, I asked.

"Several times each week somebody is killed doing this, just here in Port-au-Prince. We (he meant 'The Government') have forbidden any news stories about this because we feel even reporting people who have been killed attempting it incites others to try it."

The cable TV lines were created using what appeared to be French-sourced World War Two 'surplus' (as in too old to be useful anymore) cable and Canadian electronics. If the two-channel cable system really had 10,000 'paying' subscribers at the time, it probably had 50,000 total connections; a number I worked out by counting the 'legitimate' connection boxes and then separately counting the 'illegal connections', a ratio of about 1 to 4. And these were those I could spot street side - as I would later learn on Provo with our cable system later in the 80s, Haitians were ingenious about taking one paying subscription into a home and then branching out to dozens of additional outlets who paid not the cable company but rather the guy who paid for the subscription.

"The suit is ready for a fitting." Indeed it was - chalk marks, temporary basting thread, pins and clips abounded. It was now 1PM and we were 30 minutes from D-time. "But the shoes - do you know your American shoe size?" I did; 11-1/2, 12 would be better.

"Haitians have small feet; we have been unable to locate any shoes

larger than your size ten. Will you try these on?"

Thrust, pain, bad bruising of my skin. No go.

An anxious dialogue in French out of which I picked up the suggestion the size ten shoes be slit with a knife so my bulging feet could somehow get in. A craftsman with leather cutters appeared and seconds later I was 'wearing' toeless shoes which only hurt beyond tolerable levels of pain when I tried to stand up in them.

More dialogue in French. The shoe guy ripped the shoes from my feet, the tailors removed the clothes from my body and I was standing there in my jockey shorts when a new group ran into the room. Angry words from Captain Philip and the room was suddenly again empty except for he and I.

"May I put my own clothes back on?" asked I.

"Oh my, yes! A change in plans. We will now open The Summer Palace and the meeting is rescheduled for 2.30."

Translation. Unable to properly attire me for the '(Main) Palace,' a secondary location would be 'opened' and the meeting held there. All because the tailors and shoe guy could not cloak me in a respectable manner to be received in 'The' Palace. I would meet Jean-Claude Duvalier dressed like any Caribbean white guy beach living entrepreneur, right down to my open sandals.

"We will leave for The Summer Palace shortly," I was told. It would be a car ride to be recalled with gnashed teeth until my own death.

Philippe's car, whether his own or on loan to him, was a shiny black four door Mercedes. The two front fenders were loaded with diplomatic flags signifying the vehicle's official status in a society where as I had been told, "90 percent of the people have never ridden in any kind of car." The Benz bristled with two-way radio antennas and under the front dashboard hung a variety of instantly recognizable Motorola radios. Also under the dash in a clever break away holder was a French design machine gun strangely reminiscent of the weapons used by Al Capone in Chicago during the 30s.

Philippe opened a rear door and motioned me inside. Then he climbed into the driver's seat, picked a microphone from the selection hanging on the dash and spoke a handful of words. The response signified somebody now knew we were heading for 'The Summer Palace'.

The Captain carefully adjusted the mirrors, placed his hands with some care into black leather driving gloves and pushed a button locking the doors. We were off. The streets of Port-au-Prince can best be described by what they are not. They are not very wide. They are mostly

filled with pedestrians of which many are pushing carts, there are donkey and horse drawn carts at frequent intervals, and people do not as a rule react to an approaching vehicle by moving out of the way. They simply stand there in front of you and stare; glare would be a better description of the look on their faces and the hatred in their steely eyes.

A shiny black Mercedes was some sort of moving target, I worked out. It signified authority, directly traceable to the much despised and mostly hated Duvalier family. Virtually every native family had lost a member to the much feared secret police, the Tan Tong, and the car I was riding in represented an opportunity for them to get even with the despotic regime. I now knew why we had convoyed as several vehicles from the airport, and had only begun to ponder why Philippe was setting off on his own without an armed convoy when he turned sharply from a primary street into what appeared to be an alleyway.

"Hold on," he instructed. I was holding on having glimpsed the sheer hatred radiating from the face of those we passed. Philippe down shifted and floored the Benz. Straight ahead, in an alleyway perhaps 24 inches wider than the total width of the car, a sea of humanity and a human drawn cart at the far end of the block long 'shortcut'.

From a sensible 20 miles per hour we were passing 40 as Philippe leaned on the horn. The unfortunate folks in front of us threw their bodies into doorways as we scraped by catching several with a sideways blow to their buttocks or back. I was too amazed to protest or say a word. One man could find no escape and he was tossed over the right front bumper, landing just above my head on the car's roof, and was last seen ricocheting off the trunk and into the street behind us. The speedometer, I thought, read 50 when we exited the alleyway smashing the wooden cart into hundreds of pieces, as the Benz slid sideways to the right and began a rapid ascent up a hill.

I found my vocal cords. "We hit that guy."

"I know."

"Shouldn't we stop and help him?"

"If we stop, the crowd will hack us to pieces."

In one sentence I had Haiti in 1980 all wrapped up. The image was crystal clear; an angry mob, reacting to a senseless exercise of political authority, racing at us with razor sharp machetes. My sense of self preservation told me to shut up, which I did.

On a hilltop a mile or more from the maddening crowd we pulled to a stop before a building complex that bore a striking resemblance to a French provincial castle. Surrounded by a 12 foot tall stone fence,

entry was through well guarded steel gates. The guard detail obviously knew Captain Philippe and they exchanged only a few words before the double set of gates opened. It was now approaching 2 o'clock; 30 minutes to D-hour.

The surrealistic entry way to 'The Summer Palace' was a beehive of activity with truck loads of gardeners, floor sweepers, package carriers, radio technicians and guys in the Haitian equivalent of grey flannel suits arriving almost every minute. I gave up counting when I reached 100 people.

Philippe: "We normally use this only during the summer and it has been closed for several months. All of these workers were summoned to open it up, air it out, and make it presentable for The President."

Translation: A white guy from Oklahoma dressed in short pants and open sandals could not, for reasons of etiquette, be 'received' at the Main Palace so a veritable army of underpaid Government employees had been told to get the Summer Palace use able with only an hour's warning. Chaos would be a generous word.

I wandered around shooting up a roll of 35mm film and nobody paid me any special attention. Until a Benz identical to that I arrived in pulled up and four burly guys dressed in the Haitian pressed cotton version of an FBI agent's grey flannel suit hopped out. Each had a Motorola hand-held radio lashed to his belt and carbon copy of the gun in Philip's car strapped to his wrist. Two came towards me.

"You are the American?" Not bad English, thought I.

"No pictures," he continued using his hand to suggest the Canon be shut down and sealed in its case.

"Follow me" was his further instruction.

Haitians as a culture are neither black nor white. Nor brown. Rather they typically look 'well tanned' although the skin pigmentation is there when they are born. The black ones are the lower castes; the guy who flew over the top of Philip's Benz was jet black and probably very red from blood seconds later. These guys with guns were as light as Philippe, privileged folk in a society where the average wage was below US$1 a week. They were fed, clothed, paid enough to justify their absolute loyalty to The President and in a government system where political intrigue had never matured beyond the 1800 era of colonial France, always on the lookout for an opportunity to endear themselves to a higher authority. Shooting a threatening, non-cooperative white guy would probably earn them several points towards a commendation. So I did as closely to what I was being told as my comprehension

of their instructions would allow. We ended up directly in front of the Summer Palace's huge triple hung entry doors and one indicated with a pointing finger where I was to stand. Implicit in that gesture was some urgency that I not move unless directed to do so. After a long, very hot in the sun ten minute wait, I heard the distant honking of horns and then seconds later the first of four larger version Benzes shot through the open gate and pulled to a stop a few meters from me. When the horns sounded, every worker in the gardens had run for cover, literally disappearing. A second group, busy washing, polishing, dusting inside had, I learned later, also stopped their work and were ushered out a rear hallway.

Number two, number three, number four Benz. Out of numbers 1 and 4 jumped four guys who were the spitting image of the original four; neatly pressed cotton suits, Motorola radios, ugly rapid fire weapons. Out of number two more slowly climbed a group of six men of varying ages. Each would turn out to be someone of importance to this meeting; the head of Haiti Telephone, the head of Haiti TV, the boss guy for something dealing with Palace building maintenance and so on. Everyone stood quietly at attention as one of the armed men from car number four went around to the driver's side of number three, opened it, and out climbed an overweight, somewhat rotund man who looked as if he was somebody's son. He was. Jean-Claude Duvalier, son of the recently removed notorious leader of Haiti, Papa Doc. 'Baby Doc', as some called him behind his back, had a passion for driving himself around but of course this was only possible (and safe) if he was preceded and followed by identical cars filled with personal body-guards who honed their skills using live targets in the Haitian prison yards.

I had not noticed but the chap who had directed me to 'stand here' had moved next to me during this arrival procession. Now he leaned over and whispered into my ear, "No pictures. And we may ask for your camera."

Some discussion between The President and his armed entourage and he began a slow, lumbering walk towards the front steps. And me. Yes, I was sweating profusely and it was not only the heat of the Caribbean sun at work.

He stopped only inches from my face, looked through gold rimmed sunglasses at my face, slowly removed the glasses with his left hand and equally slowly raised his right hand indicating he wished to welcome me with a handshake. It was a sweaty palm that greeted him.

"Thank you for coming to meet us, Mr. Cooper. Shall we go inside?"

The close-standing armed guy said something to Jean-Claude in French and I understood "camera." The President looked back at me, smiled faintly, and shook his hand to say "no, he may keep his camera" and inside we trooped in single file. I stood there as perhaps a dozen people filed past simply because my 'minder' had not indicated I could move, which he now did with a tap on the shoulder and a terse, "OK - inside."

The Summer Palace interior was ostentatious to a fault; huge marble columns holding up 20 foot ceilings, splendid French gold gilt edge mirrors, paintings that probably had been stolen from Napoleon who of course had stolen them from somebody else ad infinitum. Most of the furnishings here had been imported by Emperor Napoleon's sister who had fallen out of grace with her brother's court because she spent too much time falling out of beds. Philippe had given me a quick Haitian history lesson during our time together and he characterized the Emperor's sister as "being of loose moral fiber." Here and there on the marble floors, patches of dampness indicating the hurry-up clean up and mopping detail had not quite finished when The President arrived. We were walking directly through the middle of the building with the gigantic front entry doors to our backs and then turning to the right into a mahogany wall lined room which had been set up with great urgency as a conference facility. I counted 25 chairs and my minder indicated which one was mine. As The President was engaged in some discussion with a fellow I would learn was head of Haiti TV, off to the side, nobody sat down; we all stood behind our chairs until Jean-Claude finished and with the assistance of a servant chap dressed in a white coat, somehow managed to get his overweight frame into the head-of-table chair which was significantly more comfortable looking than the other 24.

The meeting was conducted in impeccable French (not the street common Creole) and Captain Philippe was the word for word instant translator. Jean-Claude seemed equally at home with English and when he had a question for me directly, he simply used English. Which meant Philippe had to do a quick verbal translation into French for those in the group who, it was presumed, either did not speak my language or were too proud to be attending a meeting on Haitian soil where French was not the conference format.

The head of Haitian TV, and his counterpart at Haiti Telephone, apparently had very short notice about the meeting; I was never certain they had been originally scheduled to attend until it was moved to The Summer Palace.

A man in a white servant's coat began making the rounds of the 25 seats. Why he did not begin with Jean-Claude was a mystery to me but everyone he asked about bringing them a drink waved him off until he did in fact reach The President. Jean-Claude said in unmistakable English the name of an American beer. The white coated chap disappeared to obey the command and a new fellow dressed like the first then re-asked those who had waved off what they wished. Each now had a request and recalling Howard Hamilton's advice that only those people who don't mind spending the next 36 hours in a toilet drink local water, I asked if the Coca-Cola was bottled in the USA. It was and that was my choice although it took Philippe translating between me and Mr. White Coat to get the message through.

Jean-Claude: "I wish to have American satellite television in my Palace and at 'The Ranch'. The cost is not important but I will not pay too much for it. What is important is that nobody outside of this room and those who end up installing the equipment know that I have this."

OK. Now we had a well defined goal. Some discussion followed; Mr. Haitian TV asked whether his TV station could 'tap into' the service to allow them to have access to American broadcasts. Mr. Telephone wanted to request that as this was being done, could his tenuous telephone links out of Haiti be 'made better' through the use of satellite. His telephone system was perhaps the worst in the western hemisphere, woefully inadequate even to make calls across the street not to mention out of the country. Adding a satellite connection to America (or France or Canada) was technically possible but wide of the mark; it would be comparable to shoving a Chevrolet Corvette engine into a Volkswagen Beetle. And I told him so which immediately turned him into a sulking bureaucrat.

What I did not understand, being the new kid on the block and having no real appreciation for how Haiti was run, was that while Baby-Doc had inherited significant police state power from Papa Doc, he was not allowed to 'play around' with the real rulers of the country; a loose federation of a dozen or so land owning business people who between them controlled essentially every 'sou' of commerce in the nation. If any of these folks were in attendance, I could not work out who they might be.

"Can we do this - and hide it?" Jean-Claude finally summarized.

I asked him if he wished me to explain how it could be done and he said yes.

"Can we find either a chalk board or some large pieces of paper with a heavy broad tipped pen?" I asked. I was preparing to stand up and

give a step by step lecture. Of course this request created a short-lived period of panic until someone suggested they forego "Mr. Cooper's drawings and just let him explain how it would be done."

Which I did.

"First, we place the satellite dish or dishes required at the antenna facility of the telephone company. To any one asking, this is all in support of an improved telephone service and it eliminates the obvious eyesore of a 20 or 30 foot satellite dish stuck on a wall at the palace."

Smiles all around.

"Then we install a microwave system between the telephone company antennas and The Palace and The Ranch so that the satellite equipment located at the antennas can be interrogated - tuned in - by Jean-Claude or someone who is miles away at The Palace or The Ranch."

More smiles all around.

"Now, we can also make the microwave system link to Haiti TV and this will provide live access to events such as the forthcoming launch of the Space Shuttle to the TV station. Finally, when Haiti telephone is really ready to expand to a satellite link, another antenna system can be added to the site to allow it to go directly to America or France as it wishes with overseas calls."

The sulking telephone manager now smiled as well.

And a new subject.

"Please explain how your subscription television system works in the Turks and Caicos," began the TV Haiti man. I explained the concept of signal scrambling, the need for the viewer to have a decoder or descrambler, and the fee schedule we were planning.

"Can that work here - could we have an English language pay-TV channel here?"

I said they could and made a small error by bringing up the pre-existence of the Port-au-Prince cable TV system. Dead silence and then Captain Philippe with no instruction began to unravel why this was not part of their plan.

"The cable system is owned by people we prefer not to deal with," he began. He would later detail this for me. Within the 'circle of compatriots' who ran the country were people who did not get along with the others except under the most neutral of subjects. The man who owned the cable TV system was one of those and anything done to enlarge his economic sphere of influence would be a no-no.

"In fact, if such a broadcast system was begun, it would be in direct competition to this man."

Who, it turned out, had his own 'private army' of thugs to enforce

his own brand of law and regulation as might affect his business enterprises. For a few scant minutes, visions of building a TV transmitting tower atop a 5,000 foot Haitian mountain had danced in my head. It was the ham radio operator in me at work; everyone who ever became immersed in amateur radio always dreams of a mountain top transmitting site from which to broadcast around the world on short-wave. I promptly lost that vision as Philip explained the nasty side of the guy who ran the cable business; and now I understood why we were not able to visit the cable offices as I had earlier requested.

Two hours to the minute, at 4.30PM, the meeting adjourned and following hurried good-byes, Captain Philippe scooted me into his Benz for what was thankfully an uneventful return trip to the airport. There I found a very anxious Howard Hamilton with his engines running, Susan, Tasha and Kevin already loaded into the plane which was crammed to overflowing with bulky if not overly heavy items they had procured in the limited shopping venues of Port-au-Prince. Fifty five minutes later, just as the sun was laying on the western horizon, Hamilton set us down on Provo. It had been a most interesting day. Over the next decade I would visit and revisit Haiti dozens of times but none would be as exciting as the day David Johnson and I hired Ed Hegner to fly us to the DR and Ed in his traditional wisdom elected to set his Beechcraft down at Cap Haitien so he could buy 'cheap gas'. It was only after we were totally committed to landing that we realized an armed revolt with guys firing at each other all around the airport was underway! Yes, we'll get there.

Showdown with the programmers

With the advantage of retrospect, it is a wonder to me that it would be 1985 before the cable-aligned satellite programmers, such as HBO, took positive steps to protect their broadcasts. As early as 1980, when home dishes were clipping along at perhaps a few hundred new systems per month, HBO and Showtime were making public noises about 'the illegal act' of watching their transmissions. As the sale of systems volume grew significantly throughout 1981, and major news and feature publications banged on my door and others requesting interviews and insight into the phenomenon, HBO somehow believed it would all blow over. A tactical error of some magnitude.

HBO was owned by Time, Inc. which also owned American TV and Communications Corp. cable TV systems, at the time the second largest group or MSO (multiple system operator) in cable. When North Carolina Congressman Richard Preyer introduced anti-viewing legislation in July 1980 to attach fines as great as $1,000,000 plus jail time for as long as five years, SPACE came alive. And although I had invited attorney Richard Brown to attend and speak at SPTS Miami in February 1980, and some of those attending found his words of advice of concern, it took Preyer's bill (HR7747) to build a fire under the still very young and totally disorganized industry.

Preyer's bill came very close to becoming law, and it was only the skill of Attorney Brown that caused a derailment. The bill was created with the financial and political support of a wide array of corporate folks, including of course HBO. When highly placed personnel from Time and Time-Warner called on Congressmen seeking support for 7747, it was with the clear message that those who backed the bill

would be 'rewarded' when their next election campaign rolled around. Late in the Congressional session, Preyer saw he was not going to make the floor of the house so he did one of those 'last days' things for which the American legislative scene is so famous. He attached 7747 to HR6121, a bill which had been years in the making and if passed would result in the restructuring of telephone giant AT&T. This maneuver would prove to be a bad choice because 6121 ran into last minute difficulties in the House Judiciary Committee and would never make the floor of Congress. By now the House was only days from adjournment and as is traditional, bills with no 'voice' of their own were being hopscotched around as attachments to other bills which would in fact be considered in the closing hours. This is how bad legislation occurs in America; 'riders' to important bills get voted on and passed as 'hitchhikers' in the closing hours. Now desperate to fulfil his promises to HBO and camp, Preyer attached his bill to HR 6228, designed to restructure print and broadcasting media ownership rules. Rick Brown in his 'Report to SPACE members' picks up the action, as reported in CSD.

"Because it appeared that the cross ownership bill might very well get to the floor of the House, SPACE had to strenuously oppose Congressman Preyer's attempt to amend HR 6228 (with the attachment of 7747). We worked with the FCC, the Commerce Department, majority and minority counsels to the Committee and with Congressman Preyer's staff to try to reach a compromise. While our original position was that HBO and other program providers had to encode their signal to achieve protection, we bent considerably from this position in order to obtain a reasonable solution. Our bottom line was that private earth station users, as a matter of national telecommunications policy, should have a right of access to all satellite entertainment and educational programming provided to CATV systems and other such distributors. Further, where a subscription charge was made for such programs, e.g., HBO, the private user had to pay at the wholesale rate, whatever HBO charged its other customers. We believed this was a reasonable compromise. Users would pay for programs intended by the supplier to be paid for even though no copyright protection would be available, in our view, against the home user. In other words, we (as an industry) do not want a free ride. And we supported stiff penalties for those who violated the law.

"Well, it may be hard to believe but HBO and the Motion Picture Association of America (MPAA) fiercely opposed the SPACE position. Our job was to get enough support on the Commerce Committee to either defeat the Preyer Amendment or to 'amend' it to reflect the posi-

tion just described. The strategy worked and as it came down to the wire it appeared we have sufficient Committee support to get our suggested amendments passed.

"That was when Congressman Preyer decided not to pursue his attachment of HR 7747 to HR 6228, telling the press, 'it has become too controversial'."

All of this was building to a crescendo as the industry prepared to invade Washington's Shoreham Hotel over the Easter Holidays in April. For whatever reason, Preyer was not re-elected and as major industry supplier Channel Master was located in his state, some convinced themselves that corporate power by local firms had contributed to his defeat.

As threatening as Preyer's bill had been for American manufacturers, sellers and installers of home satellite equipment, for another group it was a nonevent. But not to HBO and the MPAA. CSD had been publishing a series of articles from February 1981 onward seeking to define the 'limits of USA reception' through the Caribbean, Central and South America. If you discussed such things with RCA, they claimed to have no knowledge of where their satellites simply 'petered out' (were no longer strong enough to be use able) RCA was not fibbing about their lack of information.

When a satellite is designed and tested, a desired point of the ground is labelled 'boresight' which means this is where the maximum power from the satellite will be concentrated. Logically, Kansas is a suitable selection being halfway between Bangor (Maine) and San Diego. At boresight, the smallest dish sizes will produce suitable reception but moving in any direction away from boresight causes the signal strength to diminish. For every calculated or measured 'signal strength level' at any point below the satellite there is a suitable size antenna defined. For example, suitable quality television reception possible on a 6 foot dish in Kansas might grow to a 25 footer in southern Mexico to even a 60 footer in Bogota (Colombia). Therefore someone who was not concerned about cost, to whom a 60 footer was manageable, might continue to intercept American television from well into the Caribbean and South America.

CSD sought to define where these limits might be. This sent the programmers, led by HBO, into a feeding frenzy. In their legal mind, it was bad enough that a home in rural Kansas was watching their cable-only-intended movie channel but when it became apparent that an entrepreneur in San Jose, Costa Rica (Eric Roy) was not only watching HBO but had built a TV transmitter to 'share' his reception

with thousands of others, the test pattern hit the fan.

At the root of the concerns one discovered the Motion Picture Association of America (MPAA). Movie studios sold (rented or leased would be a more appropriate legal term) their copyrights to HBO for a contracted price. The contract defined how many times the film could be shown, how much each home connected to HBO would pay for each showing, and equally important - where HBO could sublicense cable systems to show the film. San Jose (Costa Rica) was not on the approved 'showing' list. Nor was any of Canada, Mexico, the Bahamas, or Haiti. In fact, even American dependency territories in the Caribbean (Puerto Rico and the Virgin Islands) were not on the approved list.

From the day HBO went on satellite, enterprising people had begun making VHS and Beta videotapes of their movies. Many of these movies ended up in the flight bags of stewards, stewardesses, even flight captains plying the routes from Miami and Houston south. At some non-USA destination, these tapes were being handed over to 'buyers' who promptly turned the original dub into tens, hundreds, thousands of copies. And these in turn would appear a day or two after arriving in Caracas, Quito and other ports of call in video rental shops. There were some quite substantial profits here. But the guys in Quito and Caracas were not totally happy - if they could receive HBO directly, from their home town, the guys in the states and the airline crews transporting the tapes could be 'cut out' of the action. More profits for the locals, and, they would have their product hours rather than days after HBO first sent it through satellite. Pioneers in this 'direct-reception' field included Emory King and Nestor Vasquez in Belize City, Belize (Central America). The January 3, 1981 issue of local newspaper *The Reporter* detailed how the pair had installed a 6 meter Harris brand commercial antenna system and were promising 'one day turn around' for videotapes they took off of satellite transmissions they received.

The MPAA. For as long as there has been an American motion picture industry, there has been a 'cartel' of movie makers and distributors who have written their own industry rules for film distribution. All films, at least through the late 1990s, were first-released to American theaters. Over a period of months to years, the same film masters would, after playing to America, be leased to theaters 'offshore'. But as telecommunications had improved, people in Quito knew about the latest Bruce Lee movie at the same time as the Americans. And since it is mandatory that the movie creators hype their product using radio, television, magazines and newspapers, 'word about a new film' typically arrived months before the film itself did.

HBO was told, initially, it could not serve cable systems outside the United States; not even Puerto Rico. But films first shown in theaters, then rented through American video shops, moving next to HBO (or Showtime et al) were still months away from arriving at a Puerto Rico theater. Not to mention Quito which was even further down the feeding chain. HBO was denied permission to distribute beyond the 50 states because if it did so, movies would be available on a Puerto Rican cable system weeks or months in advance of the local contract theaters.

Now it might seem logical that faced with new 'speed-of-light' delivery technology, the moguls at the motion picture firms would simply rearrange their release schedules, stepping up the arrival dates so that at least HBO's cable play was not ahead of Puerto Rican or Ecuadorian theater play. Think again.

To release earlier would require a total rearrangement of a system that had worked more or less to their comfort from at least 1930 onward. And old habits, even stupid old habits, die slowly.

So when CSD reported on the activities of entrepreneurs throughout the Caribbean, Costa Rica, Panama, Venezuela, Colombia and Ecuador, red flags went up from New York to Hollywood. So too did CSD's subscription base in these entertainment power centers.

Hector Posada in Medellin, Colombia was typical. He attended SPTS Miami, returning home with a conviction that with his own hands and skills, a 28 foot dish would be constructed. The size was chosen after all of the best information available was put to paper and projections of the RCA satellite footprints 'off boresight' were calculated. Unfortunately for Hector and many others, RCA was unable to even guess what their 'footprint signal levels' might be in Medellin. Engineers who measure and then plot such factors during the construction and test phase of a new satellite simply lose interest in making measurements for locations that will be 'so far off boresight'. Which was understandable - RCA had no customer needs beyond the perimeter of the 50 states, and they would explain to anyone who asked, "lacking a commercial reason to calculate the signal level for (Medellin) we simply don't waste time doing so."

So we have this giant radio-transmitter 'searchlight' sitting there directly above the equator, focusing its light (radio energy) into a beam that is brightest in Kansas but progressively less brilliant at the extremities of the United States. For Hawaii and Alaska, two miniature 'sub-beams' focus directly on these respective land masses. Medellin would be way off to the side of the focused beam. And the only way Hector would know for sure how much energy was there would be to

laboriously create a very large antenna and then measure the signal. It was not a 'weekend project'; in fact, it would take Posada more than six months.

When he was ready for the tests, that maven of home dish systems Bob Behar flew from Miami with suitable test equipment. Meanwhile others were equally busy. Bill Larsen at Caguas, Puerto Rico had completed a 26 footer of superb quality. His report in CSD ended for all time the question, 'does the RCA F1 satellite reach as far as Puerto Rico?' By the April 1981 CSD, Behar and I had pooled everything we were daily advancing with new reports and created a set of maps for publication. Now, for the first time, potential users of American satellites from as far east as Puerto Rico, south to Caracas and north-westward across all of Central America could identify where they lived, and reading along the edges of the maps determine what size antenna and the quality of receiver they would require. Behar, ever the progressive businessman, also announced a new line of 6 and 7 meter antennas under his Hero Communications company brand. Within months, Hero would be offering antennas to ten meters in diameter.

The effect of all of this was devastating to the programmers. Behar and others were pushing the 'off boresight' limits monthly and each new area on the globe that had American TV reception available became a potential new battleground for the 'copyright police'. I must admit this was an especially buoyant period of development and each new edition of Coop's Satellite Digest was eagerly anticipated by people who were quick to translate the latest reports into new, for themselves, business opportunities. It was no wonder that the April Washington (DC) show was about to be another watershed event.

My trips back and forth to Florida would have earned me a 'frequent flier award' if Ed Hegner had such a thing. He was not amused when I showed up at Ft Lauderdale Executive airport one day wearing a custom T-shirt Bob Behar had made for me: "Wheew, I survived one more trip with Ed Hegner!!!" blazed in bright red. We finally moved into the Annex on January 26, at the last possible hour before our rental property owners showed up for their winter holiday. The building was perhaps 60, say 90 to be fair, days short of completion. Tasha and Kevin bunked on temporary cots placed in one end of the to-be TV studio, surrounding by building materials and TV supplies. The TV control room was almost completed, largely because the workers on the project knew how important this room was to their off-hours entertainment.

Two weeks prior to the fast paced move-in, I had returned from Florida to be met by a very happy 'plumber'. He insisted I go with him to the Annex to inspect is handiwork. With flashlights in the still darkened TV studio we moved through the pile of equipment and slid in between 2 x 4s where at some future date there would be a wall.

"There it is!" said he proudly, pointing the hand held flashlight into a toilet.

Yup, there it was A commode, sitting there bright and shiny mounted to the floor.

"All hooked up, but of course there is no water to test it" he continued.

Sure enough, it looked like a working device. I applauded his effort and as we were leaving, added, "Say, what made you put it there?"

The commode was dead center in the room, not back against a wall. You had to walk around it to get to the wash basin and shower - neither of which had yet been installed.

"Well, I thought about where it would go in my house, if I had a toilet," (he, like virtually all natives, still visited a 'long drop' behind his house). "I'll have one some day, when we have water and sewer in The Bight. And when we do, that's where it will go - right there."

"In the middle of the floor?"

"Yes m'on. I be so proud, I may put it in the middle family room floor!"

It would be several days before I screwed up the courage to ask him to move it, back against the wall, so we did not have to climb over the commode to wash our hands. And need I point out, this was the first flushing toilet this particular 'plumber' had ever installed in his life; installed twice, actually.

Susan called our living style 'Camp Cooper'. She was being generous. The builders arrived at 7AM, trooped in whether we were still in bed or not and began where they stopped at 6 the night before. Sam Lightbourne was as anxious as we to have the building completed and we spent each evening sweeping up sawdust and spent, bent nails so the next morning a new pile could begin. Virtually every meal had a taste of burnt sawdust and the stove was moved around daily in the annex kitchen to allow the carpenters to complete cabinets and bench tops. Any plan to stay current with the children's Calvert School correspondence course was pure folly; ten days passed from our rushed move from the Marbury House before we could even locate their schooling supplies. Of course neither Tasha nor Kevin objected to being 'on vacation' for what would ultimately grow into several months.

Kevin was spending hours learning scuba diving and earning his certificate which would allow him to teach others - save the fact he was several years too young to actually be awarded the piece of paper. To this 11 year old, the PADI certificate was far more important than gaining a pass in traditional, albeit it correspondence, school. Kevin could entertain himself, a combination of his first generation computers, involvement in the daily operations of WIV-TV, and his swimming/fishing/ boating/diving. Tasha was not so happy here; mostly, she missed having playmates of her age and gender. Kevin was rapidly becoming a young adult, Tasha was not. We tried Edmund Ewing's daughters, close to her age, but there were too many social differences. Edmund's kids were island bred and raised and Tasha was from a more advanced society where girls did girl things. I was never certain the 'knowledge' she imparted to Edmund's children assisted their own development. Mostly, she asked, "when is the next show," knowing she would be housed in a luxury hotel suite with order-by-number food and movies.

In advance of SPTS Washington the level of technology was making leaps and bounds. For example, when I returned to Oklahoma City in late-March to lace together CSD for April, my side yard (soon to be Rick Schneringer's side yard as the closing was now upon us) had a new object to covet; a ten foot totally automated satellite dish produced by a Tulsa firm known as SatFinder. Schneringer was 'inheriting' my Oklahoma dish 'farm' but for a man of 65+, going outside to manhandle a 20 foot monster dish when he wished to 'change satellites' was a burden. David MacZura of SatFinder claimed to have 'more than 75 home systems' installed, varying in price from $9,000 upwards, to double that number. What MacZura had done, in an era prior to low-cost home PCs and memory chips, was to create a motorized system with a keypad entry system. After installation, the user simply read from a logging sheet the correct combination of letters and numbers for keypad entry and having pushed the sequence listed, sit back and wait for the dish to automatically locate the satellite chosen. It all sounds pretty ho-hum in 2005 but in 1981 it was quite dramatic. For Rick Schneringer, with the new satellite receiver integrated into his bedroom TV set and the keypad control on a night stand, it was living proof that he was finally onto something quite significant; 57 TV channels, 11 satellites, at the push of a button. MacZura awaited my arrival, delighted in showing me how it worked and I literally had to force myself out of Schneringer's bedroom to rush through CSD. Naturally I said nice things about him and his system in the April CSD, which

is why he was waiting for my Oklahoma arrival in the first place. I also rearranged the Washington show schedule to give him an opportunity to make a presentation titled, 'The Dealer Dilemma'; a bonus for his two hour trip to meet me from Tulsa. Unfortunately, MacZura's brief moment in satellite history would be interrupted by some personal problems but they would not surface until later in the year.

SPACE's Brown, fresh from a 'draw' (or victory if you consider HR7747's failure to have been a victory) was on a roll. His sights were set on forcing either HBO or Showtime to agree that private home terminal system owners could pay for and thereby legally be customers for the services. He flew down to Provo during January and we spent a day talking the strategy of forcing the pay-cable services to let private dish systems into their pool. I knew from high level discussions at HBO and Microwave Associates that the first layer of planning was underway to create an encryption system for satellite broadcasts. Nobody, myself included, had a clue how long this might take to mature from concept to implementation (it would be 1985) but I believed that if we could get an interim arrangement whereby HBO agreed to accept money from private terminals, the home dish industry could 'buy' a few years of grace here. Instinctively, I believed sooner or later they had to scramble. But if we could forestall that day until perhaps 5 million home dish systems were operating, there would be a 'political power base' in that kind of number which could force legislation through Congress that would establish the long term viability of the home dish industry. Brown saw the coming year or two as a series of legal skirmishes and he felt that until we had a base of one million homes as a minimum, it was going to be difficult to continue popping the rabbit out of the hat whenever someone like ex-Congressman Preyer was coerced into introducing anti-home-dish legislation. My best estimate of 'when a million' was mid to late 1983 but I also felt we'd top 5 million by 1987.

Spending time with Rick was exhilarating and as we grew apart over the next 24 months because of ideology differences, I would miss those brain-trust times together. He knew I could be totally 'off the wall' and little that I did came as a shock to his system. He also knew I was totally responsible for there even being a home dish industry and that carried a certain amount of weight when it came to taking sides for or agin me.

"Why here?" he finally asked as I delivered him to Ed Hegner's Beechcraft for another adventure trip back to Florida. "You can't get a decent meal unless Susan fixes it, there is no liquor store, no stores, no

shopping. And you have to be Daniel Boone to survive. Oklahoma may not have been Mecca but at least you could get in the car and go to a restaurant."

Kevin had a present for his departure, likely to be removed from his possession when he cleared customs in Fort Lauderdale.

"Here's one reason," said I, opening the top on a polystyrene cooler filled with lobsters my son had picked out of the coral reef in front of the Annex that very morning. A local native lady walked up and gave me a hearty hug saying, "Thank you for that wonderful wrestling last night. My, it was good."

"And that's another one," Rick observed, climbing aboard Hegner's death-flight express. "I'll be back but not until American or Delta or someone with air conditioning, comfortable seats and drinks on board lands here!" And he was off in a puff of belching Beechcraft smoke.

The legal reality was terribly complex. Ideally, somebody would introduce legislation which said (1) owning a home dish was OK, (2) watching HBO was OK, provided, (3) money was paid to HBO for the service. That was not going to happen anytime soon simply because HBO could not accept money first from cable system operators and then from people who might have become cable subscribers were it not for the ten foot dish in their side yard. HBO owed its heart and soul to cable companies, was in fact owned by a cable company. You don't ask McDonalds to sell Kentucky Fried Chicken.

Washington, DC SPTS. On the podium, speaking to a room filled beyond seating capacity with more than 600 people, Congressman Charlie Rose of North Carolina; an influential member of Congress who had been instrumental in creating the framework for C-SPAN.

"Rick Brown is a boy scout. He says SPACE members want to pay for premium TV services. I saw hogwash; people who spend several thousand dollars for a home dish system should not have to pay for anything more. And I believe you will find that a majority of the members of Congress would agree with my statement. Nobody is going to come into my home to monitor what I watch!" Rose was in the process of having his own home dish system installed; Brown had worked out that one way to get speakers of Rose's influence to appear at SPTS was to use his contacts with SPACE installing dealer members to 'make it happen'. He had also worked out that through SPACE's manufacturing members, he could arrange a 'good deal' on the actual equipment so someone like Rose would end up with a terminal for not very much money. Think of it as a 'contribution to their next political campaign'.

Rose was a clever politician; then and after. His statement struck a responsive cord with attendees who would of course opt for 'no payment - ever' if that was a viable choice. But he was not saying this for the attendees - rather he was waving a flag at HBO and the programmers serving notice that he 'needed to be courted to their point of view' and 'courting' always includes the opportunity to receive political contributions from the courtier. As a skilled member of Congress, he instinctively realized that by playing 'hard to get' he would ultimately attract much greater support from the programmers. Another politician who would come to the 'satellite party' in the next 18 months also knew this game well; Senator (to become Vice President) Al Gore of Tennessee. A clever man can frame his remarks on a controversial subject to serve both sides and Gore was a master, as we shall see, at this tactic.

Brown, aware of Rose's verbal stance before the appearance and perhaps (I cannot be certain of this) even having suggested it to the Congressman, had primed SPACE President Tay Howard with something to add when asked about it by staff reporters from *Newsweek*, AP, UPI and the Washington Post. Howard rattled off his rehearsed answer as, "It cannot hurt us to have some members of Congress taking that viewpoint; it will perhaps be easier for SPACE to arrive at a fair and equitable piece of legislation this session to have people inside of Congress espousing the strong, 'if it rains on my head, it is mine', point of view."

Public interest legend Ralph Nader also appeared advising the attendees, "You are a part of a new visionary group of pioneers who will free America from the bondage of three channel television," (referencing then existing ABC, CBS and NBC).

Bondage. As Rick Schneringer was now officially the 'owner' of Satellite Television Technology, Inc. and therefore of the SPTS show as the gates opened, he suddenly found himself being chased by high profile reporters. It was a new experience and a lesson he would not soon forget. The *Washington Post* reporter asked him, "Why do you think this new technology will take America by storm?" Schneringer, fresh from having his own SatFinder Systems fully motorized dish system functional, wandered away from the topic question and described how, "Gloria and I lay in bed at night with this wondrous remote control on the bedside table and every night before we go to sleep I tune in the adult channel which shows some very racey films." Picture white haired Schneringer, somewhat loping in his speech, telling this young reporter how much he enjoyed watching people

have sex on television. Now imagine how the Sunday Washington Post story, replete with photos of dish antennas installed around the Shoreham, married "the promise of multiple channel television for every American" to Rick's confession that he enjoyed R and X rated sex on television while in bed with wife Gloria.

The Post story was very much tainted by the sexual aspect of the programming and how it came across was that 'a dirty old man from Texas' heads up this 'infant new industry' that is 'dishing out' non-Sunday-school morals to America. What happened next would be an image many would carry of Rick for years into the future.

Newsstand in foyer of The Shoreham. Schneringer, anxious to see the story but totally unsuspecting how his words would be twisted, awaits the 5AM delivery of 100 copies of the Sunday paper. It arrives to a mostly vacant lobby and he eagerly rips open a copy to locate the story. There in public view, he and Gloria with dish antennas framing the image. The headline and subheads all mentioned 'sex'. Schneringer is mortified; his first 'lesson' with a major journalist is a disaster. In his head, visions of total animosity when and if the attendees and exhibitors discover the story. So he purchases all 100 copies, locates a luggage hand card and hauls them away to a nearby storage closet The Shoreham had allowed him to use.

6AM. The news-stand operator thinks he has found a minor vein of gold and 100 new copies arrive. Schneringer anticipated this happening, now trying to disguise himself as a lobby pillar, buys the new shipment and off to the closet they go.

7AM; a repeat and the closet is now stuffed with 300 copies of the Easter Sunday edition of The Washington Post.

8AM. Another 100 and before Schneringer can grab them, some fall into the hands of attendees who carry them off to the morning breakfast bar where they, too, will discover Rick's passion for passion. Unable to cram the full 8AM shipment into the closet, Schneringer is marooned out in the open in the lobby with a luggage cart dodging attendees who recognize him, the paper, and try to talk him out of a copy. It is a lose-lose situation and he in total desperation now goes back to the news-stand vendor and asks him, "How much will it cost me to have you not order any more copies of today's Post?"

The lobby vendor is a blind man, and he has no way of knowing why this Texas-twanged man keeps coming back to clean out his Post supply. But he does recognizes a business opportunity - and agrees if Schneringer will give him $1 a paper for not ordering the papers, he'll agree not to bring any more in. The quantity? 500 papers, proving

blind is not the same as dumb.

Two very important events occurred during SPTS Washington. The first related to the technical format of a typical satellite receiving system. For as long as there had been satellite TV reception, first at the cable level and afterwards for private homes as well, all of the receiver proper was located indoors in a sizeable metal container. Out-of-doors went a costly 'low noise amplifier' or LNA and interconnecting the two expensive, difficult to install, 1/2 inch or larger coaxial cable. Way back in 1978, Steve Richey had demonstrated a receiver that split in half - a portion went out at the dish with the remainder inside, and it worked but the state of microwave component parts technology in 1978 would not support such a product in mass production. It was simply ahead of its time. But by the spring of 1981, several microwave firms had discovered the 'home dish marketplace' and now it could be done. The advantages were multi-fold. By placing what was essentially half the receiver at the dish, the 1/2" or larger coaxial cable was history; now only small 'CB' or similar cable used commonly and even sold at Radio Shack was practical. The first company to bring this new concept to the home market was DEXCEL, a smallish California based firm which had begun with us at SPTS Oklahoma offering the LNA product. DEXCEL was motivated by all of the usual reasons and a special incentive. In Oklahoma, their low noise amplifiers commanded a price in excess of $2,000 each. By Washington, the price had dropped to under $500 and every indication was it would go down by another 50% within 12 months. Yes, they were selling a much larger product volume but no they were not earning any more money; in fact, less.

So Art Kawai and others at DEXCEL worked out that if they expanded their equipment line, into receivers, they would again be selling equipment at the $2,000 price class to each home system using their equipment (this being the approximate sum of the LNA portion cost and the receiver cost). And now with volume 20 to 50 times what it had been in Oklahoma, by supplying both the LNA and the receiver they would be back in tall cotton again.

It worked. DEXCEL took the market by storm and the two-piece receiver demonstrated (and sold) at Washington became the new benchmark against which all others were measured. In 3 more months, DEXCEL would take it the next step and marry the outdoor portion of the receiver (now housed in a metal box at the rear of the dish system) to the LNA - one container which would install on the front of the dish where the LNA now mounted alone. Their innovative LNB (for low noise block down converter) would become the final stage in this

evolution and remains with us until this day.

The second major event was the corporate appearance of a firm from North Carolina called Channel Master. Officially, CM was not exhibiting in DC but in fact they were there in tremendous force as a prelude to an announcement to be made weeks later in Atlanta. CM was in 1981 the front-running manufacturer of TV antennas and accessories. Sid Herlihy and others from the firm had first visited me in Oklahoma in 1979, anxious to absorb all they could about this 'newest type of TV antenna system'. To their credit, they saw home dishes as simply the next generational jump of normal household TV reception. Everything they designed and sold was tuned to the single premise; better TV (and FM radio) reception through better antennas and electronics. The home dish was an extension of this corporate philosophy.

But rooftop TV antennas were doomed to die, first because of the growth of cable TV (when you have cable, you don't need a rooftop antenna anymore) and perhaps because of the home satellite dish too. Herlihy and his marketing staff realized this doom's day message clearly. They couldn't directly compete with cable selling rooftop antennas, but through home dishes - well, it would be an interesting tussle.

SPTS over Easter weekend in mid-April was important to Channel Master but their marketing strategy was to withhold 'formal' announcement of a home dish system until May 5th, in Atlanta, during the 1981 annual conclave of the 'Wholesale Electronic Distributor's Assoociation'. CM, like competitors Winegard, Jerrold and others in the home TV reception equipment business, depended upon a close relationship with 'stocking distributors' to sell their product. Throughout the United States (and Canada) approximately 50 'key distributors' accounted at the time for 90% of the annual TV antenna line business. Some of these distributors had been attending SPTS events, and were already stocking in a modest way product for resale not to consumers but rather to non-stocking dealers. If you were a dealer, and sold a particular TV antenna system to a client, your first stop would be the distributor where you would buy the parts required (wholesale) and then carry them to the consumer's premise for installation and resale (at retail pricing). Hey - it's the way the American system works. By enticing the distributors to buy and stock home dish systems, CM was starting the ball rolling down the court.

They wrote more than $5,000,000 in orders in Atlanta at a point when the entire industry was hoping to move $20,000,000 in equipment during the calendar year. Twenty-five percent of the year's total in one place at one time was a major accomplishment and spoke

volumes to both competitors such as Winegard and worrywart programmers such as HBO that home dish systems were indeed crossing into a new era of development. CM was entering the business by outsourcing everything in the package, including the receiver from California manufacturer KLM. They would waste little time replacing these sources with their own designs and arrange manufacturing for products offshore but that is getting us slightly ahead of the time line curve.

Posted on a community bulletin board at SPTS Washington:

"$100 Reward
to the first exhibitor to
display Russian Ghorizont
reception!"

Russian reception had been first demonstrated by me in public at SPTS San Jose and then immediately following by Bob Behar at Hero Communications (Miami) during the America-blacked-out Soviet Olympics. Interest in this reception had run high enough that The Wall Street Journal had written a front page piece reporting on this 'anomaly' and that in turn had attracted the attention of academics anxious to 'spy on' that country's internal television for whatever clues this might provide to the true state of the economy and lifestyle. The person posting the 'reward' notice was Kenny Schaffer, an escapee from the American rock music world in New York City who was searching for new worlds to conquer; his next 'gig'.

The odds against locating reception from a Russian satellite in Washington were someplace between slim and none but two exhibitors managed it none the less. Behar was first, possibly because he had hundreds of hours of USSR reception practical experience, knew where to look and what to look for. A Canadian exhibitor, Comm-Plus, was a close second and actually produced higher quality pictures as their reward for accomplishing the feat. What did Schaffer have in mind?

CSD reported: "I know I am crazy - there is no place on West 58th Street (for a dish). It will be defenseless and sitting out one night it will have so much graffiti on it I won't be able to see the white surface anymore. But I am one of you now - I want it. It is just that simple."

Schaffer's boldness and espirit de corp would be rewarded as he became the primary supplier of custom designed antenna systems for university, college and US government customers throughout North America. His advertising literature said it all: A dish antenna painted with a Kremlin look-alike emblem under which in two languages was

inscribed, "This dish speaks Russian."

SPTS Washington attracted 80 separate exhibitors, more than 1,200 paying attendees and established SPACE as a dynamic trade association to be supported (if you agreed with their premise) or feared (if you did not). Rick Brown fine tuned his skills to attract important people to participate, and socked away several tens of thousands of dollars in return for his office's management of the event. Rick Schneringer could look forward to the next gathering, SPTS Omaha in August, to be the very first where he would keep all of the loot, and as a bonus, he had more than 400 copies of The Washington Post to haul back to Oklahoma with the Schneringer's pictured inside.

A MATTER OF DECEPTION

Back in 1958 or so, a self-taught engineer residing in Rapid City, South Dakota was building TV translator devices which at the time were totally illegal to operate. His name was Keith Anderson and his firm, Mid America Relays Systems (MARS), was a primary source of the 0.1 to 10 watt self-help TV transmitters. Anderson and I first became acquainted, and then friends, during 1960 when his firm took out massive advertising in my inaugeral DXing Horizons magazine to promote their product.

Not very far from Rapid City as the crow flies is Burlington, Iowa and it was here that an ex-WW2 electronics ace named John Winegard returned home following the cessation of hostitilies. Winegard, and a partner, went into the TV antenna business in 1951 at a time when only 102 TV stations were operating throughout the 48 states and this meant most of America was 'beyond reception range' of a TV transmitter. This suited Winegard's appetite for building relatively large, finely engineered TV (and later FM) reception antennas which positioned him directly in competition with much larger firms such as Channel Master, TACO, Jerrold and others of that era.

The two destiny's were going to intertwine. Anderson knew a bit more about antennas than the average guy but his real strength was in amplification and signal processing or conversion devices. It was unlikely during the 1950s that any engineer anyplace in the world knew more about this special area of skills than Anderson. About the same thing could be said for John Winegard, only as relates to TV reception antennas. John had a knack plus an engineering background that allowed him to take a handful of useless aluminum tubing and

turn it into a sensitive TV reception antenna that people would stand in line to spend $200 (and more) to acquire. Both were riding the crest of the TV reception wave - homes a hundred, two hundred miles from the nearest TV transmitter were more than willing to 'gamble' hundreds, thousands of dollars to erect very large, expensive, antennas even if their reward was but a few hours of snowy, fading, television reception per day; some days, none at all. I had grown up in such a family, in Ithaca, New York.

From 1950 onward, clever engineers such as Ike Blonder and Ben Tongue (of Blonder Tongue Labs) had worked out a technique which married the large TV antenna to a small metal box installed right at the antenna inside of which was a collection of tubes and component parts to amplify the weak, snowy TV signal before it began the trip down to the TV set through the interconnecting wire. My father had in his employee an 'electronics engineer' who was challenged to create our own 'antenna top' signal booster in the fond hope that this would clear up our reception. These were called 'Mast-Mounted Signal Boosters' and they were uncommon, expensive, and because the glass vacuum tubes inside the box at the top of the antenna tower or mast would last but a few thousand hours before replacement, they were also a pain in the neck to maintain (our 80 foot mast of 3-2.5-2" water pipe could only be serviced by lowering the entire array to the ground across our backyard. I still possess hand scars earned by being assigned to one of the guy wires to 'strain' as we gingerly 'dropped' the mast several times each year to modify the MBB, change the antennas and replace the tubes.). By 1960, something evolutionary called '10,000 hour tubes' would appear (417 days of service before replacement needed) but in 1950, 1955 and even 1958, someone had to climb the tower or lower the tall antenna mast to reach the metal box where new tubes could be inserted in place of the old ones, as frequently as every 6 to 8 weeks! Now into the 21st century, when you can walk into a Radio Shack and for US$30 leave with a tiny palm held color TV set that runs on AA batteries, pull up the built-in telescopic antenna and immediately tune in a dozen or more TV channels while walking back to your parked car - the 50s seem very primitive indeed!

Anderson and Winegard shared a vision, although initially they were unaware of this common interest. Anderson saw his home designed and built 'Mast-Mounted-Booster' (MMB) in its component segments, one of which did the same function as the TV antenna; it created a 'tuning range' for the amplifier.

"Why not," he mused, "eliminate the amplifier segment that estab-

lishes the tuning range and allow the antenna to perform that function?" What was evolving in his mind was that rather than having an antenna and an amplifier that 'plugged together' into a single system, eliminate a segment of the amplifier replacing it with the antenna directly. It was not simply about reducing the number of parts and saving a few pennies; rather it was about improved (perhaps greatly improved) performance when the antenna and amplifier were an integral unit.

John Winegard was having similar thoughts but slightly in reverse to Anderson. Winegard saw the antenna as the primary ingredient whereas Anderson focused on the amplifier. But both were headed in the same direction at the same time.

John Winegard's prototype 'integrated antenna-amplifier' was functional when Keith Anderson drove into the Burlington Winegard parking lot for the first time. And in his somewhat ancient pickup truck a selection of Anderson-built TV antennas with Anderson-built integrated amplifiers. He had come, mostly unannounced, to Burlington to demonstrate his results to John Winegard. The two had never previously met.

Now, inventors are not the best folks equipped to be businessmen. I am living proof of that and others such as Michael Pupin, Alexander Zworkyn and even Marconi have proven and reproven that fact since time immemorial, confirming this hypothesis. On the other hand, engineers - fully and properly trained engineers of which I am certainly not one - often make passable if not brilliant businessmen; Dana Atchley Jr of Microwave Associates being an example of that.

Keith Anderson was an inventor, one of the very best. John Winegard was an engineer, one of the best in his field. Anderson was no match for businessman Winegard who had to but push a button on his office intercom and a dozen speciality assistants would arrive on the run. Anderson had few employees and no intercom back in South Dakota; on Winegard's turf, he was outnumbered and as the discussions progressed, out flanked. What he did not know at the time was Winegard had the antenna portion of his MBB functioning beautifully whereas it took him only a few minutes of visual inspection of Anderson's product to work out why his own electronic segment was significantly inferior to Anderson's.

The South Dakotan thought he was delivering a 'finished product' ready to be 'licensed for production' to Winegard, who saw it quite differently. You can work out for yourself what happened next; the only clue is that in 1960 Winegard introduced the Powertron TV

antenna - a magnificent marriage of antenna and MBB electronics and Anderson went back to South Dakota to prepare for the next escalation in TV technology. Winegard's Powertron completely pulled the rug from beneath competitors such as Channel Master who had to work their way through Winegard patents and Anderson provided electronics-know-how to play catch-up over the next several years.

Fast-forward now to early 1980. Keith Anderson is still in Rapid City, John Winegard's company and product line has grown like topsy and he has become a semi-reclusive Chairman of the Board splitting his time between Iowa and a new R & D facility housed in the Colorado Rockies; his private playground. His wealth has created many toys, including a Chicago-class 'nightclub' where famous rockers such as Chubby Checker appeared in downtown Burlington (Iowa!).

In 1980, Keith Anderson has a new 'MBB' concept. He had been following the development of home satellite TV, had built his own receiving system from scratch, and quietly attended a SPTS or two just to touch and feel what others were doing with the hardware. What he saw was 'expense' - and as he remarked to me, "Everyone is building this elaborate system which basically does exactly the same thing as a standard TV set and then when you get all done, you go through an adapter and connect it to a regular TV set anyhow. I asked myself - 'how can I eliminate all of this unnecessary expense?

Like his MBB invention, everything about the package Keith would demonstrate to me in early 1981 would be pure innovation. In fact, it was so outrageously simple that the best engineers in the industry would find it tempting to officially pronounce it 'a sham.' It was not.

The reason one believed you needed a special satellite receiver to recover a transmission from space was the adoption by all satellite system operators of something called 'FM' or frequency modulation. And every television set ever built (aside from a few in France, where everything is always done 'backwards') was designed for AM (amplitude modulation). Inside a satellite receiver, whether one piece indoors or two pieces split between indoors and out of doors, was a FM signal recovery circuit which, having reduced the incoming signal to a pure video signal, now used this to recreate an AM signal which an outboard television receiver would recognize as a 'standard' TV transmission.

Keith's approach was dead-simple. "Since we end up with a TV set at the line of the equipment line, why not start with one? Modify the way it works so that it can directly interrogate the FM satellite signals and eliminate all of that fancy, expensive and troublesome equipment in between."

Dead simple? Yes. But if it worked (it would), what about the industry that had grown up around designing, producing and selling the special 'FM format' reception equipment? This was clearly a significant change in the way an entire industry functioned and it would be seen as a 'major threat' to everyone in the equipment business.

Keith was still smarting 20 years down the road from his meeting with John Winegard and he told me so. "You are the only person outside my family I trust with this information at this time," he confided. I thought about his dilemma for a few weeks and went back to him with a proposal. But first a question.

"Do you want to produce this equipment yourself?" I asked. He had three sons and a daughter, an unusually close knit family that would lay down their lives for their Dad. And he had enough contacts in the South Dakota financial community to raise perhaps 2 million dollars to launch a factory to produce the equipment. What he did not have was any interest in being 'overseer' of a factory. Keith had always been a 'loner', the introverted 'inventor' and although he was facing the opportunity to salt away enough money to make he and his children independently rich for generations to come, he could not bring himself to 'manage people' the way his clever circuits 'managed electrons'. And he told me so.

Fair enough. His children, led by his eldest son and daughter August, were however pressing him to raise the money locally in South Dakota and then assign them - the four kids - the job of making it run profitably. I suggested an alternate plan - which coming from someone who was hardly an example of good business aptitude - was both brazen and ultimately dumb on my part.

"Let me nominate a company to run with this," I began. "And let me suggest that what we really need in the forefront of such a company is someone who has such impeccable credentials that even Taylor Howard will find it difficult to put the concept down." I went on to explain that such a company would pay him an upfront royalty for a contracted period of time during which either they got into production and sales with the package or it came back to him and the family could then have a shot. I had nothing against his kids, and several years later after being divorced from Susan would seriously entertain courting August Anderson, one of the brightest people (male or female) I had ever become acquainted with.

"Who with impeccable credentials do you have in mind?" he asked early.

"Steve Birkill from England," was my response. Birkill had already

told gold plated firms such as Microwave Associates, "No - thank you," largely because his wife, a public spirited doctor in England, wanted nothing to do with America. I thought I had an answer to that - involving Birkill staying in England but flying back and forth to the USA every month or two to spend a couple of weeks.

"What we need from Steve is his whole hearted support of the concept, and his willingness to stand up to doubting Thomases such as Taylor Howard and tell them to 'kiss off - this thing works' whether you like it or not!" I was already concerned that one bad statement from Tay could set the project back several months or longer and while I knew he could not be courted privately on this issue. But if he thought someone with Birkill's credentials was going to 'slap him down' in public if he decided to try bad mouthing the system, he would think long and hard before attacking it. In a pissing match to be reported in Coop's Satellite Digest, Howard would be a knockout in the first round and I wanted to ensure that, before he climbed into the ring, thereby encouraging him to stay out of the pissing contest.

All of this discussion came to a head during the SPTS Washington show as we spent hours talking through the various options. To more fully appreciate the innovation here, some quasi-technical explanations are necessary, for which I apologize.

All satellite reception requires a dish (or similar) antenna and Keith's system was no exception. That was the only common thread in what he did. At the dish there was (and is) a signal amplifier - the LNA of 1981, the LNB of 2005. It is attached to a small antenna known as a 'feed' and it is this feed antenna actually collecting the signal which has been previously gathered and then focused to a narrow beam by the parabolic dish (reflector) antenna.

Innovation number one. In 1981, RCA's cable programmer satellites placed 12 TV channels on one polarity (call it horizontal) and 12 totally separate program channels on the opposite polarity (call it vertical). The horizontal and vertical channels are interleaved since one will under normal circumstances be 'visible' only when the feed antenna is mechanically or electrically made to align with that particular polarity. The common belief was that while it might be possible to 'park' the feed half way between vertical and horizontal and actually receive all 24 channels from one common feed adjustment position, the FM satellite receiver would not be able to separate the two into individually clear images. In other words, two program channels occupying essentially the same 'space' at the same time would make reception impossible because the receiver would be unable to resolve

one and reject the other. Keith thought otherwise and he designed a new type of feed that would equalize the two polarities at the antenna so that indeed each of the 24 channels would be separable from all others.

Only this would not work with a standard FM receiver; the kind everyone was using. So innovation number two. He began with a garden variety Japanese 12 inch portable TV set - the kind that even in 1981 was capable of operating from a 12 volt car or marine battery. Nothing fancy or special here - a 'workhorse' TV set designed for hard, knockabout use in somebody's backyard or on a camping trip. Keith replaced the standard 'AM' portion with a highly unusual 'FM' section and his first design worked, after a fashion. What it lacked, he quickly determined, was 'fidelity' - the pictures looked 'squeezed' or reduced in detail. For this he had another fix and when I next saw the system work at a clandestine meeting held in a suburb of Tulsa, Oklahoma the reception was of moderate if not quite high quality, approaching that possible with $900 FM satellite receivers, only they could not provide all 24 channels without making a polarity adjustment at the dish feed proper. Keith, uniquely, had all 24 channels lined up one after the other without even touching the feed portion of the antenna once properly set.

Innovation number three. Keith had elected to reproduce the satellite TV band so that it fit more or less comfortably into the tuning range of the Japanese receiver. This meant a user could simply turn the tuning dial with a new transponder inscription covering the normal UHF channel 14 - 83 portion of the TV set, and there were the 24 satellite channels; WTBS, Showtime, HBO - they were all there. And because he was doing all of this within the TV set's UHF tuning range, that led to innovation number three. Off the shelf Winegard, Channel Master, Blonder Tongue (etc.) equipment could pipe the entire satellite TV band operating within the UHF channel range around a household. Or neighborhood. This meant one 'community satellite aerial' could deliver 24 channel satellite TV to as many homes as you could reach with standard small diameter coaxial cable, as long as the individual homes were equipped with the 'FM modified' TV sets. Others who were using standard FM satellite receivers had tried the same thing but with only minor success and at great expense because the cable between houses had to be Ω inch or larger in diameter whereas Keith's system worked just fine with flexible Radio Shack (cheap) 'quality' cable.

There was one more innovation that really grabbed my attention for it had immediate useful ramifications in remote places such as

Provo. Drawing upon his decades of experience in building TV translator transmitters, Keith had designed an amplifier which, when connected to a small UHF transmitting antenna, sent all 24 channels over distances as great as 10 miles without any cable at all; through the air! On Provo I would be the first to test this aspect of the system outside of his rural South Dakota testing where he hoped nobody would cotton to what he was doing.

In 1984, three years down the road from this particular point in time, I would spend a glorious five days in Rapid City with Keith as he demonstrated to me the significant 'coverage punch' of his by-then mature through-the-air system technology. He did this by connecting all 24 TV channels, after his modification, to a ten watt amplifier which in turn was connected to a transmitting antenna located on a hill behind his home. Then we climbed into his family van which had on the roof a palm-of-hand size UHF receiving antenna that in turn was connected to one of his innovative receivers on a table in the van. He opened up a cooler filled with beer and we took off down the road, me in a custom lounge chair anchored to the floor behind the driver's seat twiddling on the TV channel tuning dial and he driving down country roads and talking constantly about the tests he had run prior to my arrival. I found it more than revealing that here I was driving through rural South Dakota watching first HBO, then CNN, then C-Span (etc.) as we rolled along onto an interstate highway and climbed to 60 mph. Occasionally the picture blinked for a fraction of a second but for more than ten miles travel we were watching his ultimate accomplishment; satellite TV in the privacy of your moving vehicle miles from the dish antenna.

Returning to 1981, "How will you explain this to the home dish industry?" he asked as we were leaving SPTS Washington. I did not know but he had several suggestions, all good.

"I'm not over Winegard and if you don't mind, I would prefer it be done in a way which will keep me at least initially so far in the background that people don't know I am the developer." He almost never used the word 'inventor' when talking about himself. Keith had tremendous respect for that handful of people whom he believed were totally responsible for television and radio and in his South Dakotan modesty simply would not allow himself into their league. However, as unsung as he was and would remain, he was of course the equal of many of those who 'invented' before him.

We both knew that initially I had to convince Birkill or a reasonable facsimile to become the 'point person' and on a parallel path

locate someone of great integrity to turn the working prototypes into mass produced products.

Steve Birkill was overdue for a new trip to visit the American TVRO industry and I decided to ask him if he might manage a paid-for visit in June or July, prior to the next-scheduled SPTS Omaha gathering in mid-August. He of course wondered, "What is up"? and I elected not to tell him anything. If it could be arranged, I would pick him up at a convenient Midwestern airport and drive him to a demonstration of the system with no forewarning of any kind as to what he was going to see. He agreed but continued asking, "Why"?

Step two was to locate a suitable production facility. This was the tough part. I made a long list of every supplier in the business, paused for sometime on John Ramsey's name and then decided John and Keith might not get along and settled on a relatively new acquaintance who was to say the least impressive. David MacZura of SatFinder Systems in Tulsa, Oklahoma had demonstrated to me an unusual set of business skills. While competitors all around him were dropping their 'installed in your backyard' pricing, David was running his facility overtime and raising prices weekly. I did some checking on him, discovered there was (oil) money in the family and while David's recent past history in the home stereo system business might not have been gold plated, he seemed to have it worked out with the motorized SatFinder system which I first saw in Rick Schneringer's side yard; the same system that Rick enthused about to the reporter from The Washington Post.

MacZura readily signed a nondisclosure agreement, immediately hired a plane to Rapid City and came back smiling from ear to ear.

"Raising two million, even five million, is a piece of cake" he told me on the telephone. "This is the big one!" And this got me as far as Coop's Satellite Digest for July, which I was completing in late June from Rick Schneringer's basement. A conference call between MacZura, Keith and myself.

"I want to say something in print," I began, "because if Birkill reacts as we hope he will, we could in fact do some sort of public display in Omaha." Dead silence.

"Dangerous" was MacZura's first reaction.

"If you do this Bob," began Keith, "I must insist that it not be linked to me in any way at this time. And remember, the rebroadcasting part where we send the entire satellite's 24 channels through the air to remote receivers - that is not legally possible inside of the United States."

I, of course, knew this but was amused that the true 'father of illegal

VHF TV booster stations' was now advising me that when he connected all 24 satellite channels to his ten watt amplifier and an antenna, he was 'breaking the law'! His concern was that by in anyway encouraging CSD readers to do such a dastardly thing, we would immediately attract the wrath of the FCC and who knew which other federal agencies. I could handle that aspect in print.

MacZura's comment on this verified Keith's concern.

"Who cares about the FCC - think of how many FM-modified receivers we could sell if you covered a ten mile radius of the dish?"

Which further validated Keith's fears. MacZura was the guy who was going to raise the money to put all of this into production, someone with at least a modicum of technology savvy, who was somehow missing the point that, 'this was actually bigger than the big one'. The FCC might have overlooked Anderson's MARS translators in 1958, they would not be nearly as cheek-turning if dozens, hundreds, thousands of satellite TV relay stations began popping up all across America.

So I sat down to write one of the most fabricated technology stories of my then-25 years of high-tech writing; right up there with my low-tech 'Milkman raped by housewives!' from my days at ABC radio. I had to tell the complete story, but only to the extent that it would become the most discussed topic in the industry leading up to SPTS Omaha. It is only fair that I admit to having negotiated a 'piece of the action' in the to-be-formed company so you can quite quickly work out that I was slightly past the neutral line of unbiased, objective reporting. My 'investment' would not cause me to exaggerate or ignore any of the technical facts but Keith felt very strongly that unless I agreed to be 'similarly rewarded' as he and his family, that there would be no project progress. He didn't have to twist my arm very hard to get me to agree.

CSD for July. Soft technical facts woven around a totally concocted scenario, excerpts of which related:

"During May I was allowed to see the operation of what many might label, 'the ultimate satellite receiving system'. I touched it, played with the knobs, took off the cover to inspect the circuits and totally lost my voice. There was very little I could say beyond, 'Gee whiz' and 'I cannot believe this!'. As I tuned the special receiver I saw Nickelodeon and then PTL and then WGN and so on pop up in sequence just as if the receiver did not recognize that half of the channels were vertical and half horizontal. I believe fewer than ten people in the world have seen this system work. Perhaps four of us have seen inside of the magic box."

And then the concocted hype to mislead those who might have

otherwise begun looking in the USA for the source of this wondrous instrument:

"The security surrounding this project is unreal. It is straight out of James Bond. Someday, when I am allowed to do so, I will write about the people who travel quietly and swiftly in private jet aircraft from continent to continent carrying with them in a small briefcase not only a complete TVRO receiving system but also a TV transmission system that allows the terminal's multiple channels of service to be transmitted through the air for hundreds of square miles around." All the better to focus curious minds beyond North America.

And as for the upcoming Omaha SPTS?

"I have asked those responsible if they might agree to demonstrate the system there in August. The answer was a quick, emphatic, no. I have not given up, however. I then proposed that since they wish their own identity with the project kept under wraps that they button up the equipment in totally secure housings and allow me to locate a non-related but respected industry supplier to place the equipment on operational display. I offered to hand carry it into and out of Omaha personally, and to further arrange for a 24 hour security guard throughout the show. They are considering it and I'd say we have a 50-50 chance of seeing it work in Omaha."

With the cat out of the bag, the response began. Overwhelmingly, engineers of the David Barker and Taylor Howard family condemned the report for 'creating false hopes concerning the direction of the industry's technology'. Most focused on the simplistic argument, "two signals cannot occupy the same spectrum space at the same time - they will interfere with one another." Anderson's system of parking the antenna 'feed' half way between the two opposite polarity signals created equal amounts of each but 1 and 3 overlapped 2; or to put it another way, if each channel occupied '40 units' of space, the three now took up 80 units not 120 because units 0-40 were for channel 1, 40 to 80 were for channel 3 and channel 2 would fall between 20 and 60. Not clear? Bare with me.

Taylor's learned Stanford professorial theoretical physics was akin to the theory of the universe before Einstein came along with his wonderfully simplistic formula that unravelled the mysteries. Anderson fully understood the Howard espoused 'FM' theory; he also could look at his TV screen and visually see the theory was, if not wrong, not complete.

I elected to go into Omaha with essentially the system which I described in the July CSD; heavy security, dedicated booth space for the

system, armed guards. But first we had the Birkill hurdle to climb.

Steve flew into Tulsa to a palatial welcome arranged by MacZura and his right hand trusted employee Larry James. I was there and so was Anderson. In MacZura's backyard, under a MacZura created SatFinder dish, Keith had wired together his system which by now had been given a name; SCDN for Satellite Cable Distribution Network. Larry had a full afternoon of Texas style bar-b-que and 'hands on playing with the system' planned. My day-earlier arrival had allowed me more time with Anderson and I also came to know Larry James better.

Birkill was teeming with curiosity but suffering from jet lag. His body said it was time to sleep but the clock suggested lunch. It is perhaps useful to understand that Birkill presented an unconventional figure which always stood out in a crowd. First there was his shoulder length blondish-brown hair, seldom neatly arranged. Snarls is an apt description. His face is thin and dominated by glasses which were perhaps in style in - say - 1945. His speech is precise and deliberate and of course the British intonations made you stop and listen because anyone who talks like this must certainly have something important to say. MacZura looked his youthful sub-30 and bounced around like a rubber ball (we would work out why later, mis-assuming he was simply excited about the opportunity here). Anderson, dressed in a plaid shirt, could have just stepped down from a horse in his native South Dakota. And I in Caribbean shorts, open sandals and a shirt out of place anyplace north of Fort Lauderdale had already been chastised by none less than Baby Doc Duvalier for my appearance. We were an eclectic group gathered under the shading of the ten foot SatFinder dish, trying to stay out of the overpowering smoke of Larry's poorly placed backyard bar-b-que, humped over and inspecting Keith's handiwork.

Everyone waited for Steve's first response. MacZura stopped bouncing because Larry placed his hand on the youngster's shoulder to calm him down and there was dead silence while Steve tuned the Sony 12" battery operated TV set dial, and then, following Keith's approval, took the cover off of the two essential pieces of Anderson equipment and studied what he saw inside.

MacZura's SatFinder CSD advertisement for August would announce, "NOW ... a SatFinder Antenna System for Less than $3,000.00." David had recently expanded into a 23,000 square foot facility (roughly 230 by 100 feet) allowing his antenna production to ramp skyward rapidly. Previously, his antennas had been the most difficult of his system parts to create (he bought receivers and LNAs from

others) and a comfortable backorder situation would evaporate as his antenna production capacity was doubling. The advertisement could have been construed to be misleading because this was not the SatFinder antenna which automatically memorized and refound 11 different satellites and 50+ different satellite TV channels (that rose from $2,895 to $3,995).

"I like this antenna," were the first words out of Birkill's mouth. He had stepped back as many experienced satellite people do and was eyeballing from the nearest edge or rim of the antenna to the furthest; something one does when they are trying to work out whether the dish is 'a perfect parabola' or 'deformed.' The majority are deformed, and an experienced hand could walk through the antenna lot of a show with 100 or 200 antennas and in an hour or less categorize 'good' and 'not so good' antennas merely by checking the alignment of the dish antenna rim.

These were not the words we were anticipating. It was not the dish that was featured, here.

"I now know why you paid for my ticket here. This is very interesting and most unusual. But I don't think it is commercial in its present format."

A lively, depressing actually, discussion ensued. Birkill had a number of negative observations starting with the 'patent ability' of the system which he judged 'poor, because while it creates a new end result, it actually does this in conventional, public domain way'. He had no technical questions initially - with the covers off the LNA portion and the receiver, he saw it all in maybe two minutes time and fully understood everything Keith was doing. Most folks can read Rand McNally roadmaps; Birkill could 'read' circuits involving hundreds of small parts all soldered together in a maze.

Major depression. MacZura disappeared into his house and then we heard his Lincoln Town Car start which was gone a half hour or more. One could but wonder why at the time and where he went. We'd work that out.

Anderson and I shared honors for 'most depressed'. I tried to explain to Steve the unique features of the system - 'transmitting the entire satellite contents through the air' using wireless technology to slightly Anderson-modified TV receivers.

"Where in the world?" was Steve's cutting question. "You might get away with it in remote Canada, maybe in rural Wyoming or Montana until caught out, but where else?"

I tried the Caribbean and then Central America.

Steve was a walking text book of every report I had ever written in CSD. "But CSD says the signals from F1 (RCA's cable TV programming satellite) are very spotty down there, and most important, the vertical and horizontal transponders are uneven in signal strength. Here in Oklahoma, in the center of the footprint, everything is nice and even in signal level. This is an ideal situation to demonstrate it but where in the world other than the American Midwest can you duplicate this most unusual situation?" And then as an after thought, "You can't use it here because of the frequency allocations." This was 'the FCC problem'.

Keith had two suggestions. First, he recounted how between his 'Winegard experience' in the late 50s and the late 70s, he had become a full-time resident of the Philippines and in fact remarried with a lady from that country. He suggested that counties such as the Philippines were 'ideal' for SCDN and rebroadcasting through the air.

Steve's answer was unfortunately spot on. "But there are no satellites serving that region of the world which do what F1 does; you might get one or two or even three channels of service, but never the American-rich 24 channels of RCA's F1."

Keith's second suggestion was that the 'through the air rebroadcast' function was only a part of the market; cable TV using his system was totally legal in the United States (and Canada). "It does not have to rebroadcast through the air to be a profitable product; cable is perfectly suitable as well."

Which brought Birkill back to the 'patent question'.

"I fail to see how you would protect this novelty from encroachment by interlopers." The British have a peculiar command of the English language, to be admired.

"What you have done in the LNA and down converter can be duplicated by anyone who takes the cover off the antenna mounted unit. What you have done inside the 'telly' can be worked out down to the exact component parts in perhaps two hours time. And in my judgement neither can be patented. Furthermore, if they could be, very minor circuit changes would create ways around the patent while at the same time still accomplish the same end result. I am excited about what you have done but frankly not optimistic about your opportunity for commercial success."

Somehow the bar-b-qued steaks about to be served were no longer as appealing.

Omaha. The only thing that worked properly was our attempt to keep Keith Anderson's name and involvement out of the SCDN fantasy.

No Birkill, a MacZura tabletop display equaling 2 booth 'spaces' on the showroom floor which totally failed to work on day one, worked after a fashion but not to good reviews on day two and then finally on day 3, acceptable if not brilliant performance. The reality was this.

Neither MacZura nor anyone on his staff had taken the proper care to really understand how this system was best installed for demonstration purposes and they were ill-prepared to deal with the pressure of a showtime atmosphere with a technology that begged loving care and attention. And because they did not have the technical background to appreciate the nuances of what SCDN could (and could not) do, when presented with Doubting Thomas questions from the skilled minds of Royden Freeland (International Crystal), Taylor Howard and Bob Luly - their answers fell far short of being satisfactory. All of which verified that lacking a Steve Birkill 'defender' of the integrity of the product concept, the 'technical wolves' in attendance had a feast ripping it to shreds. In public. SCDN was wounded if not dead - for the moment - and almost nobody bothered to attend the funeral. Keith Anderson had to stand far outside the circus ring and after attempting to inconspicuously 'pass messages' into the activity center, simply walk away, for now. He knew what it could really do; it was not doing this, helpless to create a 'fix' without giving away his 'inventor' status.

The problems were all mechanical and could have been corrected before any attendees saw the less than sterling quality of the images. The frustration for Keith Anderson, outside looking in on the event, had to be intense. First of all, the system had a trade-off which had not been fully obvious in Tulsa 5 weeks earlier. When the dish's feed antenna was 'parked' half way between the horizontal and vertical transponders, neither arrived at the receiver with full strength, So if you were in, say, Omaha where normally a ten foot dish would produce high quality pictures, what you really needed for SCDN was a ('next size up') 13 foot dish when you were trying to show off both polarities and all 24 channels simultaneously. MacZura's SatFinder firm only built ten footers and when he hooked up the equipment in Omaha the need for a 13 footer was quickly evident. There were 51 antennas installed on the Holiday Inn show site parking lot and yes many of them were 13 footers. You might think, in retrospect, that one of these suppliers would have been pleased to 'loan' use of his (or her) antenna to the demonstration. Think again.

MacZura and his crew were still considered 'newcomers' and while they got high marks for their obvious profit structure, the general feeling about them was more negative than positive. Larry James tried

in vain to talk a 13 footer into making itself available, largely to no avail. I finally had to intercede as 'Coop' from what should have been a 'neutral journalist' position to make it happen and then only on the final day of the three day event. But the damage had already been done and the winds of changing sweeping the SPTS exhibit hall were blowing right by 'the joke from Tulsa' (as it had quickly been cruelly dubbed). And although the 'joke' did not bowl over the crowd as anticipated, still some orders were written and MacZura and James left Omaha confident that they would overcome the negative reaction. Neither could foresee MacZura's behavioral problem interceding.

Anderson, still the unlabelled 'inventor', would quite wisely (I thought) elect to take the equipment back to South Dakota where over the coming months and years it would turn into the foolproof system that I would delight in sharing with him in 1984 as we rolled down an Interstate highway in his brown van. But that was the future.

MacZura's 30 minute disappearance from the backyard bar-b-que should have been a four star alarm bell. I missed the significance but would shortly work out why under stress he gravitated to some outside help. And although neither the backyard demonstration arranged by SatFinder nor the following public display in Omaha rated 'rave reviews' there was an opportunity here for Birkill to come to America and immerse himself in the rapid developing TVRO world. In his home country, there was no TVRO world of any kind and his skills, special knowledge, and talents were totally wasted in England although he was a much admired BBC transmitter engineer for their terrestrial TV system.

Taylor Howard seldom - perhaps never - rated someone in the industry higher than himself. But about Birkill, he told me and I reported in CSD:

"Steve and I should have had reverse roles. He should have been in the United States where the opportunities to grow as far as your abilities will take you are far better than in the UK. Steve would have been the Arthur C. Clarke of home satellite terminals. It is about time that we as an industry recognize Birkill is the one guy who has made all of this possible for the rest of us."

Between the August 1981 SPTS show and May 1982, Birkill spent 10 months being thrashed by the United State Government's work-VISA entry program. Birkill had an employer (SatFinder) and an offer even his wife, Carole, decided was worth transitioning for. SatFinder had paid Keith Anderson a sum of money to hold a 'license' to manufacture and distribute the Anderson SCDN system. Birkill was confident

he could take Anderson's basic 'invention' and turn it into a world-selling product line. But getting Birkill 'in' to America as an employee of SatFinder was an exercise in jumping through bureaucratic hoops. Perhaps had it been Microwave Associates with the clout of a major firm, the process could have been done in a month. The 'novices' in Oklahoma, MacZura and Larry James, were no match for the red tape that simply dragged on and on. On May 17, 1982 the final approval arrived. As fate would deal this hand, on May 18, 1982 SatFinder - the company - closed its doors forever, and although in CSD I reported the event by saying "For reasons private and personal, there is no more SatFinder," the truth was never revealed. I shall do so, shortly.

Things were not going well for SPACE either. Earlier in 1981, Rick Brown had used the FCC as a forum hoping to make such a nuisance of himself and SPACE that two premium movie firms on satellite (HTN - Home Theater Network, and Showtime) would finally cave in and agree to allow home dish systems and non-cable served motels and hotels to become paying subscribers to their services. Westinghouse was in the process of acquiring HTN, TelePrompter was buying a major interest in Showtime and then Westinghouse would take over TelePrompTer. Some of this required FCC approval and Brown saw this as an opportunity to muddy the acquisition waters by moving that the FCC deny the transfers of ownership until both firms had agreed to 'sell' their services outside of the cable TV camp. There had been other momentary, short-lived successes. New to satellite ESPN, for example, had for a few months accepted 'Lifetime subscriptions to their service' from home dish owners for a one-time payment of $100. Then the price had risen for a brief two weeks to $150 before ESPN simply refused to grant such licenses. At SPTS Washington, HTN and Westinghouse had been 'ready to sign the deal' with SPACE and so immediately following the DC show both walked away after the FCC dismissed the SPACE objections to the new Westinghouse acquisitions allowing the sale to complete. SPACE cried 'Foul!' and tried to make a major issue of the change in heart by both. The SPACE membership meeting held in Omaha was largely filled with gloom and doom although by some strange quirk, none of this 'regulatory bad news' seemed to dampen interest in buying equipment.

The official attendance figure was 'more than 1,200' but as people could (and did) simply drive up to the antenna lot and spend a day non-chaperoned checking out antennas and equipment on display, the total attendance was more than double that number. Inside, 80 exhibitors showed off equipment and it didn't take much effort to get

into the exhibits even without a 'registered attendee' name badge. Rick Schneringer was quickly learning a few things about 'securing the site' from trespassers who didn't pay the require $125 admission fee but the beneficiaries of this 'extra traffic' were the exhibitors. Channel Master nemesis Winegard made this their first formal outing, and one major innovation appeared which would immediately alter the design of all future home systems. It was not SCDN.

It was that 'polarization thing'. When the original Cooper 6 meter terminal provided by US Tower's Stormy Weathers appeared in my side yard in Arcadia, Oklahoma, essentially all of the satellites then operating were using a single polarity (horizontal). But shortly thereafter RCA began experimenting with new transmissions on the opposite polarity (vertical). At the dish, the feed antenna at that time (1978) required an initial precise adjustment peculiar to that one polarity and then it was left alone. To receive the opposite polarity, the feed had to be mechanically rotated 90 degrees, or, the dish had to be equipped with a then-new gadget called an 'orthomode coupler'. The latter choice was expensive (in excess of $1,000) and must then be equipped with a second LNA which would set you back an additional $3,000 or so. Even for cable TV systems this was an expensive option and made any programmers who would agree to use the newly available vertical polarization channels quite nervous about whether or not they would have much of a chance to talk cable systems into using their programming. The cable operators were finally coerced into the orthomode plus second LNA because they required full time reception from both horizontal and vertical. Private terminals like mine could put up with the inconvenience of 'either - or' (one at a time) and a mechanical switching arrangement.

Enter a small company in Ohio known as Alliance. From the early 1950s Alliance had been manufacturing a standard home TV antenna accessory called an 'antenna rotator' or simply rotor for short. With it on your rooftop TV antenna, and a control box atop the TV set in the home, the user could repoint the outdoor TV antenna to new directions - any direction in a complete 360 degree circle. If you lived between Columbus and Cincinnati, for example, you had two choices; separate rooftop TV antennas for the TV stations from each city, or, an antenna rotor. The advantage of the rotor usually won out because with it, a suitable Winegard or Channel Master rooftop antenna could be pointed towards a host of other TV stations as well (such as Louisville, Steubenville and so on).

But where cable encroached on TV reception and rooftop antennas

began to fade as a viable TV reception option, Alliance had watched in dismay while their sales plummeted. For a brief period, 1978 through 1981, there was a resurgence in their sales activity because of something I did to my home dish. The feed antenna was removed, a new piece of pipe was installed, and an Alliance rotor was installed with the feed bolted to it. Now from your satellite TV reception center, you could 'rotate' the feed in a circle and 'switch' from horizontal to vertical polarity, and back again. I detailed all of this in CATJ magazine for during 1978 and as the home dish industry grew Alliance was pleased to see their monthly rotor sales climbing by a thousand and then two thousand a month when virtually every home dish manufacturer routinely included an Alliance rotor with their satellite antenna. Keeping track of Alliance sales was a handy way to monitor the growth of TVRO. No, they never sent me a Christmas card, but they should have!

More on point, what they really should have done is recognize a burgeoning market for a slight variation of their product. Well, perhaps not so slight, but doable. Alliance, like virtually all of the big-time 50s and 60s TV reception accessory firms (of which Winegard and Channel Master would be included) had a single technology which they exploited through massive advertising and a runaway public acceptance of the new TV medium. They started with a simple rotation mechanism, expanded that as technology allowed to include 'memory preset positions' (turn control here - the antenna will automatically go to that direction), branched out with other simplistic set-top devices such as signal boosters and antenna switches and then made a common but usually fatal mistake. They fired their development engineers (of which there were but 3 at the peak) and coasted on yesterday's product designs as the market for what they made became smaller and smaller and smaller. Not all such 50s firms were so short sighted; Channel Master and Winegard both created R & D Labs, special places in their plants where the latest technology was investigated and considered for new products. Alliance could have - should have - done the same because sooner than later every mature product dies and is replaced with something better, newer.

Rotating the satellite feed antenna was directly up their alley - something Alliance 1950 engineers could have solved with a specialty product in a few months of research. It took a totally unconventional California engineer named Bob Luly to do the work and ultimately reap the benefits.

Luly had attended the early SPTS events and had a concept which at the time seemed just a little bit too crazy to work. He realized that

one of the first things anyone had to do to sell a home dish installation was demonstrate how it performed. In 1979, 1980 and into 1981, a high percentage of the would-be customers were sceptical of the claims. For example, there was Walter Bessenius who owned a tourist hotel in Cap Haitien, Haiti. Or closer to home, Willard Eagan, a large scale wheat rancher living near Arapaho, Oklahoma. Virtually everyone who had become a 'dealer' in home dish systems had a working system at their own home (many operated from their home) or place of commercial business. A prospect would be invited to come there, watch the dish system work, touch the dial, move the dish with the motorized system, and work out a plan to make their own purchase. Others had discovered a more impressive although considerably more troublesome technique; they acquired a 'demo rig' which was a ten or twelve foot antenna mounted on a modified boat trailer. The trailer was pulled to a prospective home, set up to receive at least one satellite (typically the RCA F1 which at the time carried 20+ channels of TV), and left overnight or over a weekend. In this way the consumer could see it work in their home through the family TV, which went a long ways towards answering scepticism (a home dish system seldom 'went in' for less than $5,000 and figures to $15,000 were not uncommon so this was not a go-to-K-Mart spur of the moment Blue-Light-Special impulse buy for most). Eagan, the wheat farmer, bought his ten foot SatFinder system on the strength of having it parked next to his home, directly beneath a behemoth 100 foot TV aerial mast which had served him (after a fashion) for decades.

But Walter Besseneus in Cap Haitien could not seek out a local dish dealer because there was none within 800 miles, and nobody was going to drive a trailer mounted demo rig to his Haitian hotel anyhow. Enter Bob Luly's radical concept. He recognized that there were many occasions and many locations where a conventional dish simply could not be transported. As a student of NASA technology, Luly worked out how space scientists were building antennas that went up with satellites after being packed in a compressed format until the space machine arrived at a selected altitude (such as 22,300 miles above the earth). Then and there on command, the packaged antenna unpacked itself, spread its wings and became by some combination of electronics and mechanics a fully functional antenna.

NASA was doing this with something very much resembling a folded up lawn style umbrella. A 2 to 3 inch diameter aluminum tube acted as a support structure for a network of unfolding metallic 'stays' - picture any umbrella you have ever seen and then make it ten or

twelve feet in diameter when unfurled. Replacing the usual plastic or canvass umbrella material, a special NASA developed 'gold mylar film' and this material which the struts pulled back taunt was then stretched into the shape of a parabola; the desired shape for a 'dish' antenna. A complete ten foot Luly version antenna weighed in at around 40 pounds, easily handled by one man when folded, hand carried and shipped as excess baggage on an airplane.

Canadian Jake Milligan, a cable TV system operator from Ontario, arranged to acquire one of these miracle antennas and carried it in his private plane from Miami to Cap Haitien. There, on the balcony of the Mont Joli Hotel, Haitian Frenchman Bessuneus, Milligan and a local crew unfurled the 12 foot antenna and went searching for satellite TV signals. This was about the time that the first adult-film service ('Private Screenings' aka 'Satori') was appearing on satellite and nothing could have suited Bessuneus more than intercepting this particular service under a lush Caribbean night sky while downing rum punches. Bessuneus immediately became a 'satellite junkie' and like hundreds of others throughout the Caribbean, Central and South America, would spend the next five years or so totally immersed in this passion.

Luly's antenna was an established fixture of the home dish world by the Omaha show; Bob Behar routinely spent weekends at never-twice-the-same Caribbean facilities akin to the Mont Joli for months on end first demonstrating satellite TV using the 'Luly Antenna' and then on the spot signing orders (and taking deposits) for much larger antenna permanent installations that as often as not ran to $25,000. So when Bob Luly said, "Eureka - I have it!", unlike David MacZura's similar pronouncement for SCDN, almost everyone listened carefully.

What Luly had was a 'magnetic polarizer' - the gadget which Alliance should have been smart enough to be working on two years prior had they still employed any research engineers, and had their management been bright enough to realize a tremendous new business opportunity. Luly's 'MP' installed at the dish feed, like a piece of meat in a sandwich inserted between the feed and the LNA (I also felt he should have given it a more market oriented name - like 'Dagwood').

Luly's MP did something quite extraordinary. It used electricity, a magnetic field in fact, to rotate or twist the satellite signals as they passed from the feed antenna through the MP to the LNA. Think of this technology as you might envision a laser device used in human eye surgery. It 'grabbed' the signals passing by and on command made them readjust to a new format. It grabbed verticals and made them horizontal while at the same time it took all of the horizontal chan-

nels and made them vertical. And this was the almost perfect replacement to rotating the feed antenna with a mechanical rotor. Vayo con Dios Alliance; RIP.

Taylor Howard, who was because of his 'professorial status' already considered the 'doctor' in home TVRO (he had not pushed his claim for being 'first' yet), did something equally extraordinary. The Luly 'Dagwood' was perhaps the very first home-TVRO-industry development which qualified as a major invention that would have ramifications throughout the entire satellite world, world-wide, and one would think Howard would have led the applause for Bob's innovation. Not quite.

For two years Tay had been a 'silent 50% partner' in a smallish California firm calling itself Chaparral, ostensibly headed up by an ex-Stanford student of his named Bob Taggart. Chaparral manufactured feed horns (they also tried antennas and wisely left that business early) and while Luly's gadget was not a direct competitor to the Taylor-Taggart feedhorns it was (in Taylor's mind) 'encroaching on Chaparral territory'.

A Chaparral advertisement appearing in CSD for August 1981 - released in time for Omaha.

"We couldn't settle for the best ... so we made it better. Taylor Howard helped us design the first Chaparral feed system for satellite antennas."

Indeed. Taylor Howard was in fact 50% of Chaparral. Between 1980's first product and 1990, Chaparral would sell over 1,000,000 of their 'Howard feeds', become embroiled in several costly (and ultimately losing) patent suits over the feeds, and gross more than $50,000,000 (yes, that is 'million') for Tay's handiwork. When Howard and Taggart saw the Luly 'Electronically Variable (+/- 90 degree) Polarizer Transition' (the 'Dagwood'), it was the color red. Or green, with envy. I remember Howard's anger when he saw the demonstration as vividly as it happening yesterday.

But life takes some strange and unpredictable twists and turns, for hanging around the fringes of SPTS Omaha was a fellow named Gene Augustin who hailed from Florida. When Gene saw 'The Dagwood', what he felt was great appreciation for a well thought out solution to a difficult problem. He knew me from past cable TV events, sought me out and we talked at length about the Luly creation.

"There is another way to do the same thing, without the magnetics," he offered. I suggested he share it with me, something people were always doing because I was 'the Coop' and anyone who read CSD (virtually everyone did so) knew of my own maverick instincts.

Gene reached into a well worn combination one suit travel bag and briefcase and brought out a small cast aluminum device with two wires protruding from the casting.

"This is a mechanical polarizer," he began and there sitting in the cup of the palm of his hand was a huge lawsuit waiting to explode.

"It does the same thing as Luly's, except rather than magnetically attacking the satellite signals, it uses a small motor at the side to rotate the probe on the feed portion. It is not electronic and not elegant like Luly's - it is dead simple, but it does the same thing, and I can probably manufacture this for say, $5 each in a small quantity. Say, 10,000 at a time."

Meanwhile out on the exhibit floor, Luly was already fending off a long line of would-be licensees. Virtually every manufacturer of receivers wanted to incorporate a tiny add-on circuit into their receivers so that in the field the installer could connect up 'The Dagwood' and the home user would have instant switch selection between the two polarizations. There in Gene's hand was a competitive answer, likely to cost one-eighth what the elegant Luly device would cost in production, and therefore destined to be a very stiff challenge. This all-mechanical device was exactly what The Alliance Company should have done if they had been awake. Luly's magnetic polarizer required some special in-depth knowledge of how microwave signals react when passed through a magnetic field, not something most people instinctively know or understand. But Gene's tiny child's game motor connected to a bent piece of #12 wire was precisely the sort of 'keep it simple stupid' (KISS) approach that had made America the world's leader in mass production technology. Luly was elegant and his 'invention' important to the future of home dishes. Augustin had a far cheaper, simpler answer.

Gene said he was undecided what to do with his 'gadget', but mentioned he had a patent application. What he did next was a mistake; he sought out 'Professor Howard' for a share and tell. Picture this.

Luly's Dagwood was taking the industry by storm only hours after first being demonstrated. The entire industry was right there in Omaha and word of its capabilities spread like wildfire. Howard believed himself to be 'the best microwave engineer' in the industry and Luly had just one-upped him. Worse than that, Luly's device was directly related to the feed system and while it would compliment, not compete with, the Chaparral feed product, what was to stop Luly from going the next step and marrying his Magnetic Polarizer to his own feed which would electronically switch signal polarities? A worry, for sure. Did

Luly have a patent application already filed? How long might it be before Chaparral was another has-been name in the business?

Gene unpacked his center of palm tiny device for Taylor to see. That was all it took. If Steve Birkill could work out what Keith Anderson was doing with SCDN in two minutes, Taylor had the essence of Gene's device in ten seconds. It was a classic example of, "Why didn't I think of that!!!"

Gene told Taylor he was on the way to the airport, returning to Florida, and extracted a promise that, "We will talk when we are both back home." Not quite. With Gene safely out of the Omaha parking lot Howard and Taggart begin to tell people in hush-hush tones, "We have a much better device than the Magnetic Polarizer," and, "It will cost just a few dollars more than our standard Chaparral feed and it will come to you as a feed with the switching built in."

Opportunity is as opportunity does. Luly's magnetic polarizer went on to become a significant device for a number of receiver manufacturers, including Microwave Associates/MA-Com. But before the next satellite show, scheduled for Anaheim, California in November, Chaparral would unveil their 'Polarotor' feed and immediately behind it would be a trail of patent infringement lawsuits that would stretch all the way through 1997.

Deceptions. With an international population base to draw upon, by the time we reached Omaha a number of would-be dealers and consumers had been 'bitten' by deception. Some of it would become criminal fraud before it was finished. The 'black magic' aspect of creating high quality television pictures 'out of a length of wire and a hank of hair' had attracted people with many ingenious qualities including the art of misrepresentation. Some would-be suppliers fell into it innocently enough simply because they over estimated their own skills and began accepting money from customers before they were ready (able, capable) to deliver product. Others were borderline mental cases who believed their self-puffery even when courts of law would ultimately show to them contrary.

The amount of money at risk was sizeable. For an individual enthusiast consumer, $1,500 was barely enough money to send off in the mail to someone who might be promising 'a complete TVRO receiver system'. Include the antenna and double that number. Find ten people who would order the same package and the 'Fraud-by-Mail' total was $30,000. And ten was a fraction of a fraction of a fraction of the growing market. In other words, a fraudster did not have to attract a high percentage of 'return interest' to his promotion to realise very large cash flows.

Cascade Microwave, an Oregon firm, had fallen to the wrath of irate customers and Postal Inspectors late in 1980. Unfortunately, CSD publicity about the case did not deter others from trying their own scam. Exhibitors at SPTS shows were perfecting their demonstration and sales pitches to catch suckers who might not have been as careful as they should have been. Picture this.

You are a plumber from Michigan and somehow have learned about this exciting new business opportunity. With a 'national trade show' every 4 months, you would not have long to wait until you could attend and actually walk through the sizeable parking lot filled with antennas (Anaheim in November 1981 would top 100 total antennas for the first time and that was child's play when compared to just two years later when as many as 500 antennas would be setup at a show!) and down long indoor aisle ways crammed to the roof with magic electronics connected to hundreds of TV screens blaring out MTV sound and HBO movies. If you were new to the satellite world, it was a cornucopia of sights and sounds and virtually everyone you bumped into at a show was exuding excitement, whipping out check books and putting money down on a seller's table. Hundreds, later thousands of 'plumbers from Michigan' crowded the aisle ways anxious to grasp every tidbit of information they could locate and then rush home to amaze their family and friends with not only their knowledge but the total immersion of MTV and HBO in their own living rooms.

In Omaha I found far too many 'Michigan plumbers' back for a second or third round of SPTS but this time wiser, and leaner.

"I thought I was being careful in Washington," one began. "After inspecting all of the antennas and watching hours of satellite TV in exhibit booths, I selected a supplier who had outstanding pictures and what I believed to be a high quality ten foot antenna product. I bought ten complete sets, anxious to go home and establish a retail business selling systems." What he was telling me was he had spent more than $30,000.

"When the antennas arrived, I was hugely disappointed. They are fiberglass construction and come in four pieces for each antenna. I selected four and assembled an antenna - it was a giant potato chip!"

He meant the antenna's four panels, making up a whole antenna, did not fit together properly and when assembled the dish was 'warped' into a shape that was more like a potato chip than a parabolic dish.

"Not one of the 40 panels came even close to the pristine antenna that so impressed me in Washington. I spent weeks juggling sections around trying to reclaim enough to get at least some of the dishes

working. I failed."

Antennas in 1981 were sold in a number of formats and one of the most cost effective was fiberglass. The SatFinder, for example, was assembled from 5 separate fiberglass pieces of which one was the center section and four more bolted onto that as 'wings' to reach the desired ten foot diameter. Most others were created as four separate pie shaped wedges or panels and then bolted together to form a complete dish which would be attached to the steel frame mount. The art of fiberglass antennas was anything but mature at that stage (it would become far better over the next two years) and many of the practitioners were either total neophytes to the procedure or had been schooled in less critical markets such as fishing boat construction. Fiberglass works with a 'master' and 'mold' system; a carefully hand constructed master is created as a 'template' for the purpose of making one or more 'molds'. The master is exactly like you hope the finished antenna will be while a mold is a reverse of the finished product (think of the mold as a kitchen tin utensil into which batter is poured to allow cupcakes to bake).

In theory, every antenna segment created in a mold that is a reverse replication of the master will be exactly like the master. But this only happens when the fiberglass resin, the temperature of the room where the work is being done, the humidity of the air in that room, and most important the skills of the workman, are finely tuned. Between the cup and the lips, mistakes do occur. The only difference between a 'mistake' and a proper antenna fabricating panel section is the trueness of the finished product to emulate a segment of a parabola.

"I have a complaint, and ten antennas that I cannot sell to customers since they are too badly out of parabola. Contacts with the supplier have been fruitless; he guaranteed the quantity, not the quality of the pieces."

It was a bit like the myth placing a monkey in front of an 88 key piano. After weeks, months, years of banging on the ivories, sooner or later the monkey would create a sequence of notes which you would recognize as music. Put someone in a fiberglass facility to make quarter-panel sections of a ten foot dish and if he stayed with it long enough four would evolve which together would form a perfect dish. Now, take that hand selected four to a SPTS show and claim this is your antenna product. It was dangerous as hell to be a 'plumber from Michigan' at SPTS trade shows.

My own concept of how this deceptive practice could be squashed ran long and deep. First, I was in favor of SPACE setting up a team of

qualified folks who would act as an industry 'Seal of Good Practice' board. And while it was certainly possible (and legal) for SPACE to require all manufacturing members submit their products to some basic tests before (1) they could become members, and, (2) their product could be emblazed with a 'SPACE Seal of Approval', two influential folks at SPACE were dead set against my plan. Taylor Howard was one, Rick Brown was the other. You might ponder why.

As Taylor carefully tried to convince me, "This is a brand new, young industry with exciting innovation monthly. If we set up some sort of police force to oversee product quality, we would lose that innovation and drive new entrants into the field away. Growth would stop or at best slow way down."

Brown was more pragmatic. "This is a can of worms which I want no part of. Imagine the potential for law suits if we turned somebody's product down and they sued because of the obvious financial loss that would result from their being 'excluded' from the SPACE membership 'club'."

Underlying Brown's unusual fear of lawsuits was finance. If SPACE had to spend money defending its' 'go / no-go' decisions for product compliance, valuable funds which he needed and wanted for fighting the programmer lobby in Washington would be dissipated. And of course that was the root of it all, for both SPACE President Howard and Chief Counsel Brown. SPACE was struggling to raise the money Brown's office was requiring each month to stay on top of the many-faceted attacks on our industry, some legal and some Congressional. He needed more money, not less and the 'Seal of Good Practice' would turn into a money user, not a money gatherer. With household-name firms such as Channel Master and Winegard now into the game, he had assured each their monetary contributions would be focused on the legalizing of home terminals, not some high risk 'product compliance' diversion.

The second aspect of my plan ran to Rick Schneringer as the new owner and operator of the SPTS trade shows. I suggested to him that he might be considered 'summarily libel' by allowing people or firms with questionable products to purchase display space from him and appear in shows. A perfect example of this was a fellow named John Rohner who called West Liberty, Iowa home. Rohner had first announced through a paid advertisement in CSD a very novel 'computer digital receiver' in May 1980. What he perhaps had done was sit down with a fertile mind possibly fortified by a fifth of Scotch Whiskey to create a list of every possible function a receiver of the future might

include. Things like totally controlling your video recorder, on command, switching channels in your absence to locate a particular program at a specified time and then firing up the recorder to retrieve that program for you in your absence. All quite manageable in 2000, totally out of the question in 1980. Then after making his 'wish list' he apparently pulled a number out of thin air ($1,500) as a price tag on the product. Which he began to advertise in CSD.

I was burnt by Mr Rohner at the July 1980 SPTS. Responding to his advertising, I had contacted him on the telephone and decided if nothing else he should be given an hour on the San Jose seminar schedule to explain his concepts and answer questions about how he intended to do these wondrous things. And he agreed. By the time we all arrived in the California city, he had an enthusiastic and very excited following who had become hooked by his CSD advertising.

On the day and hour of his printed-program-listed one hour, I stood at the podium waiting for his arrival. It did not happen so with something approaching anger excused myself from the podium and went out searching for the man. He was easily found - surrounded by a dozen or so folks near his exhibit booth, expounding on one of his pet theories about how a 'satellite TV receiver should be built'.

"Excuse me, John - but your session is now starting and several hundred people are waiting for you in the hall."

A shuffling of people and an annoyed look directed at me for daring to break his monologue.

"My friend did not show up so I cancelled."

"What friend?" I demanded.

"My friend from Southern California who was going to assist me in my session. So I decided not to do it."

No more discussion; that was it. And I was left with egg on my face and a sinking feeling in my stomach as I trotted back to the seminar hall to break the news to the hundreds gathered there. It should go without elaboration that John Rohner was on my crap list from that day forward, without respect to what he was or was not otherwise doing in our industry.

People sent money for his 'Rohner Converting Video Receiver'; Charles A. Torbitt of Fresno, California $1,500. Terry Turner of Houston sent $4,000. And they were but the tip of an iceberg. Torbitt was especially persistent and brought some attorneys into the fray. They managed to get Torbitt a shipment consisting of one 'Rohner Basic Receiver' which carried a list price of $695; a far cry from the $1,500 digital model. In desperation, Torbitt took the 'basic' receiver to a Fresno firm

with decades of microwave experience and after he paid them for an inspection and trial test, they pronounced it 'inoperable in its present form'. Meaning - inside the metal container, a bunch of parts many of which connected to no others and there was no way the device could function as a satellite receiver. Or anything else, save perhaps as a very low wattage night lamp because at least the two tiny front panel bulbs glowed.

Torbitt then went to the postal inspectors and ended up in the office of the Consumer Protection Bureau operated by the State of Iowa. There he joined a queue of nearly a dozen who had similarly been forced to 'turn to legal steps' to claim back their mail forwarded funds. Rohner's deception was perhaps mostly to and of himself. Industry supplier Hayden McCullough, of Vidiark Electronics in Arkansas, took Rohner one of his antenna systems in June 1980, just prior to SPTS San Jose, hoping to get on the good side of the man. McCullough was primarily interested in becoming a distributor for the receiver and figured if he did something nice for Rohner, it might be reciprocated. What he found in West Liberty was someplace between depressing and outlandish.

Rohner's firm occupied a tiny niche in a family owned machine parts and tooling business. Two brothers and a sister ran the 200 employee firm turning out parts for International Harvester and others. The family resources were obvious; John's part in all of this was not. Sister Elizabeth (Reese) would explain to CSD (August 1981), "Father (the elder and retired in Florida, Rohner) has bailed John out of trouble like this several times in the past. This was to be his last chance to utilize family resources to create a business for himself. His younger brother Bob has 25 employees building computers in a corner of our shop so John's business plan was manageable." But the elder Rohner had insisted that everything John did with his satellite receiver company must be administered by the family's corporate attorney (a man named R.M. Russo) and that Elizabeth and her husband were, at father's insistence, to be in charge of the day to day business functions. When we talked with Elizabeth at length, attorney Russo had thrown in the towel and walked away from responsibility for John's activities and Elizabeth had engaged Russo's lawyer son Jay to bring suit against brother John over who was going to take the 'fall' for the tens of thousands of dollars which claimants were pressing through the US Mail fraud office and the Iowa Consumer Protection Bureau. Rohner would fight to stay in business until January 1982 when the Cedar Rapids (Iowa) Gazette would report:

"A West Liberty Company engaged in the manufacture and sale of consumer electronic products has filed a bankruptcy petition. J.P. Rohner and Associates, Inc.., which went into business in March 1980, listed $130,715 in debts and $69,460 in assets. John P. Rohner was listed as principal stockholder in the company."

Alas, Rohner was going to refuse to simply roll over and die; he, like the stranded rider on the Boston MTA, 'would return'.

None of this was especially pretty nor attractive and through Coop's Satellite Digest I kept up a running account of the fraudsters who had moved into the home satellite world with fancy talk and wild claims. As I was flying from Omaha to Oklahoma City at the close of SPTS there, I ran into a fellow attendee while waiting to change planes in Kansas City. He was from French Guyana, a small enclave along the coast of South America just east of Venezuela.

"I have bought this 12 foot dish and complete system," he began, proudly displaying a colorful four page brochure. I asked him what he expected to see with it.

"Why, everything!" he responded showing me a hastily scrawled note along the margins of the brochure signed by someone who had handed him the brochure as a receipt for his $6,500 cash payment. The note, deciphered, said:

"You will receive every satellite and every channel you saw demonstrated in Omaha with this dish system."

Nobody had, to the best of my knowledge, ever performed even a 'Luly Portable Antenna Test' in French Guyana although CSD had some months prior very carefully plotted the minimum size dish required to receive 'any' (which was far fewer than 'all') American TV satellite signals as far east as Barbados and Venezuela. The reality was that even with a 30 foot finely tuned dish system, this fellow was going to be badly disappointed. I mentioned that I hoped he spoke either Russian or Portuguese and then explained that under the best of circumstances his 12 foot dish, when and if it arrived in a use able fashion in French Guyana, would only produce two channels and neither of these would speak English.

What this drove home to me was that while we had scheduled numerous seminar sessions throughout the Omaha show to teach first-timers like him exactly what was possible and what was not, some people will miss the essence of such discussions largely because they wanted to believe that something can be done even if the best knowledge available suggests otherwise. And while people could and should be self-inquisitive about such wild claims as the seller of his 12 foot

dish had inscribed along the margins of the brochure, if you want to believe strongly enough, even John Rohner and his ilk cannot be stopped from bilking people out of their money.

Letters to CSD maintained a focus on this 'hype' problem as this extract from January 1983 illustrates:

"We have enough problems with the pure junk that is hyped as professional quality, but to also see people taking orders and deposits (at trade shows) before they have even fully developed their 'junk' is absolutely the end. All of this leads to the inevitable back orders due to such great demand. Just to let you know there are good people, and that it can be done right, I have the highest admiration for the folks at AVCOM, Earth Terminals, Chaparral, ADM, ATV and Drake."

Ultimately, I fell back on 'exposés' in CSD to try to keep the lid on this sort of clandestine activity knowing now that no matter what we reported or how often it appeared, somebody someplace was going to get snookered by a fast talking con man.

The rush to satellite

It had started with HBO and a Cassius Clay boxing match and escalated rapidly from that event. From two 10 meter size dishes at two cable systems, the best estimate in September 1981 suggested that something approaching 43,000 were now in operation, very few ten meters in size. And based upon our CSD monthly tally of growth in the private or home arena, climbing upwards by at least 2,000 a month. The revolution was entering its sixth year and from this point onward the numbers would head for a plateau of 75,000 new systems each and every month by 1984.

Of course it was not all 'home systems'. The TV networks had trusted AT&T and their new Comstar series of satellites to work out a plan allowing each TV station to take its network programming feed from satellite. The plan started, stopped, hiccuped and started again. Somebody at AT&T was constantly losing the plot and the networks were fighting a losing battle with independent program syndicators who were so anxious to have a TV station carry their programming they were giving sizeable, expensive, dish systems away as an inducement.

Syndicator Robert Wold had been the first smart person to work out that he could package TV shows for simultaneous release nation-wide (subject only to time zone differences) using satellite. His linking choice was Westar (Western Union) which during the 1980 and onward period would in fact attract the lion's share of this business. An example. The Merv Griffin Show, new to air in mid-1981, was being packaged for individual TV station use in 3 different timing formats: 30 minutes, one hour and 90 minutes. If Wold and Griffin had to rely on tradi-

tional terrestrial Bell microwave transmission, individual stations would be paying thousands of dollars each month just to have the show transported to their control room. These AT&T costs made it very unattractive for any stations except those in the very largest (top 10 to 20 by size) markets. No matter how big a hit Merv might become. An alternate plan was to put Merv on tape and send the tapes all over the USA. This also cost money, close to $2,000 each month per station. Plus the tapes created new playback challenges for the TV stations as well, all of which added to the overall cost of carrying the show.

Satellite. For under $1,000 a day Wold could rent a transponder and send the show nation-wide to every affiliate as 30, 60 and 90 minute packages. But when he started this plan, almost no stations owned a satellite dish and the associated electronics. So Wold dangled a nice carrot in front of the TV broadcasters.

"We will pay for a portion of the dish system, you will pay for the balance. Out of that you will have full-time 24 hour use of the dish system except for the 30/60/90 minute segment each (week) day when we will feed you the show."

Stations stood in line to sign-up. Not only was Merv likely to be a good money spinner for the stations (attracting sizeable audiences and therein allowing the sale of some big dollar advertising time) but while the stations had fiddle-farted around waiting for their respective networks to get satellite feeds going, this would get stations into 'satellite equipped' status instantly. Wold's run away success did two things. It forced the networks to revaluate the AT&T plan to 'eventually' equip their affiliates with dish systems, and, an army of Robert Wold-copycats climbed out of the Hollywood swamps. If you drive past virtually any TV station in North America today, you will see a yard 'littered' with satellite dishes - as many as 20 all lined up like mechanical soldiers and each dedicated full-time to point at one specific satellite from which they receive some portion of their programming. Syndicators that carbon-copied Wold such as King (the home of Oprah) would follow suit - a free or almost free dish system as inducement to carry one or more of their programs.

What satellite instantly did for TV stations was to break the yoke of being totally dependent upon their network AT&T terrestrial links for programming. Now, for the first time, independent programmers could reach stations coast to coast and border to border simply by using satellite rather than AT&T. It was an important nail in the eventual coffin being assembled to bury the American TV networks.

And while for home systems the most interesting and widest variety

of programming was available through RCA's F1 'cable TV' satellite, during 1981 a tremendous new width and breadth of unusual and unique programming appeared first on Westar and then on the AT&T Comstar birds. All of this had a direct impact on what home dish salesmen sold. It might have been acceptable to sell a dish system permanently fixed on F1 in 1980; by 1981 the dish system had to have a 'dish mover' to be competitive. The SatFinder system was a sterling example of doing just this, efficiently and dependably, and it didn't take long for home receiver suppliers to work out that what the world really needed was a new receiver with built-in circuits and controls to also move the dish from satellite to satellite (the earliest dish movers were add-on accessories with their own, separate, control box).

ABC, CBS and NBC were, with AT&T prodding, experimenting with satellite feeds. ABC, uniquely at first, saw satellites as a two-way loop; not only could station affiliates receive their programming via satellite, but perhaps they could also send programming back to ABC using the same system. ABC was first to explore this return function and by mid-1981 was encouraging affiliates to purchase 10 and 11 meter size antennas not because they needed such monsters to receive the ABC feeds, but more to allow them to also 'upgrade to transmitting' as well. The ABC affiliate stations could in this way become 'active news stringers' for ABC National, feeding stories back to New York for possible inclusion in ABC network newscasts. It was about this point in time when somebody in ABC News, a sorry ratings-third to NBC and CBS for the mandatory dinner time evening newscast, conceptualized a trio of anchors stationed in New York, Washington and Chicago. The idea was New York would concentrate on international stories, Washington on political reports and Chicago on domestic news. By connecting Chicago to New York via satellite and Washington to New York using AT&T terrestrial lines, the production center in New York could seamlessly switch from anchor to anchor as the news of the day dictated, thereby filling the normal 28 minute newscast period. ABC first elected to send the Chicago based anchor, Max Robinson, back to New York using a RCA satellite, later moved to Westar.

Max Robinson became an ancillary reason why people all over the United States decided to purchase a home satellite dish. I have shared this 'story' with many friends through the decades following the initial home dish industry burst and make no apology for whatever biases as may be apparent to the reader.

This is one of my favorite 'early satellite days' stories. WNT (World

News Tonight) was a new concept, multiple anchors spread throughout the USA (NYC, Washington and Chicago). ABC News thought they could build a bigger audience (in an era long before Peter J) by spreading the anchors around and switching in the appropriate one 'live' within the evening news. From Washington to NYC was cable. But Max was fed from Chicago, live via satellite. So there every night from 15 to 30 minutes before WNT began through the second (west coast) run was a live studio image from Chicago sitting on satellite. Usually it was boring stuff - guys and gals moving around the studio checking gear, someone 'sitting in' for Max so the camera shots and angles could be rehearsed. And then - and then - the grand entrance.

Max would arrive in a flurry of excitement. Well, a flurry of anticipation. To say he was a man subject to widely varying 'moods' would be an understatement. The crew, especially those who's duty it was to tend to the 'star', were obviously nervous - before he arrived and until the calibration of his 'mood' for that particular day was established. The makeup person - almost always a Caucasian lady in the early days - was the most nervous of all because she had to actually be close to him to do her thing.

Max would arrive with a large glass tumbler filled with a red liquid in his right hand. Some days he managed to deposit the tumbler on the news desk without incident. Other days he tipped it over setting the glass down, sending liquid all over the news desk. Which of course drenched his news copy sheets.

This would be an appropriate spot to note that because this feed was (1) live, (2) open as in not encrypted, for 'The Max Hour' (which often ran to closer to two hours) a not small group of satellite junkies spread throughout North America became enamored with watching the entire telecast. It was so famous for a period of time that a bar in South Carolina, with a satellite dish, posted on the marquee an announcement: 'Max R Drunk and Live Here Nightly at 5.30PM'. One drunk attracted lots of other drunks and in South Carolina in 1980-1981, the concept of a 'black' TV News anchor had not quite reached the top ten in public popularity. So here you would find a bar packed with dozens of typically white male southern guys shouting at the TV screen each time Max did something awkward or 'off color'. They seldom had long to wait.

The red liquid began as tomato juice. But it was only red in color. It was mostly vodka. Max's Chicago based report took maybe 7 minutes out of the half hour - typically in two bites. But he had to sit there ready to be on-air for closer to 30 minutes, twice (one for the later

'West Coast version' which was an updated 30 minutes from the east coast version).

Enter Max with a nearly full glass. He always found some human being to say something really nasty to as he approached his news desk. It could be a lighting guy, an audio gal or his favorite target - the white blond haired makeup lady, who was cowering in fear usually off to the side. The crew judged how 'their day' was going to proceed based upon the intensity of his first verbal attack. The second judgement came when he set the glass down - did he spill it?

I don't know which 'union' she belonged to but this was perhaps the only TV newscast set in the world where a lady with a metal pail and a mop and a belt tucked full of clean up rags was a part of the regular crew. Her job was to 'stand by' to clean up the news desk set area when - seldom if - Max knocked over the glass.

Max of course had been drinking before he arrived on the set. Some days he would arrive only minutes (down to seconds) before he was due on the air. Those were the most entertaining days - he would be surrounded by people - one took off his street jacket and tried to adjust his tie. The floor director pleaded to introduce him to the news copy and give him a briefing ("We go in at 5.40 and come out at 8.10 the first time ...") while someone else speaking at (not to) him through the speaker connected talk back system was shouting about the film they would roll. Somehow in all of this the magic glass floated in his hand - from one hand to the other while the wardrobe lady fought to place his on-air jacket over his arms. Just on the edge of the camera view you could see the blond haired white lady assigned to try to put on his makeup as he sat down and the crowd dispersed.

Down in South Carolina and at hundreds of similar locations the guys were rolling on the floor in fits of laughter - and ordering another "Max Robinson special please!" And of course shouting things which today would be 'politically incorrect' about Max.

Over time Max seemed to become aware that he had a secondary audience. It was certainly no secret - my Coop's Satellite Digest did a couple of lengthy reports - with photos shot off the screen, so everyone in the satellite biz knew the story. A lot of guys and gals using early Betamax gear recorded dozens of hours of Max for posterity and some of that tape is still floating around in carefully edited versions. At every satellite convention/conference there was always a Max Robinson side show, when he was on the air or after hours when people shared their 'best of Max' tapes.

It would be difficult to pick a 'best of Max' but the temperature of

his tomato juice was extremely important to Max. Whether he knocked over or spilled the tumbler that came in the door with him, or he simply consumed the whole glass (typically about half way through the first WNT feed), the staff was obviously on edge about his anticipated demand. He would consume the last drops and set the empty glass down. Now there began a mental count down. I was once told that in bars around the country people would start counting in unison. "One - two - three" and so on. A bar in California even held a nightly lottery and the guy who picked the right number got free (Bloody Mary) drinks for the rest of the night. The 'right number' was the counting number that corresponded to Max picking the empty glass back up, looking at it with his piercing eyes and then holding it high above his head with a flourish. That was the end of the counting - when the empty glass went 'high'. It was also a hard signal to his 'drink person' to rush to him with a new tumbler. It would not do to come and get the empty unless you arrived with a new tumbler in hand.

Temperature. There were two things that would set him off faster than anything else (not to suggest there were only two). The first was the white blond haired makeup lady whom he rode (well, that is a statement about his verbal abuse - anything else was supposition) without mercy. She was a "no good sl>>" when he liked her. She was much-much-much worse when he did not like her. Max taught people all over North America a string of previously unheard (in the white world) words. And the temperature of his drink. I never found verification that someone sat there with a thermometer in the second drink (he having brought the first one with him) but his lips had to be the most accurate temperature gauge every awarded to a human being. Too hot? He threw it at the person who delivered it. No matter he was due back on WNT in ten seconds. Red stuff all over the place. Too cold? Same reaction. The drink lady was the usual target but not exclusively the only one. 'Cue the lady with the pail and the mop!'

The pail lady was initially a black lady. Max decided she was a poor example of the plight of blacks one day and launched into a diatribe about blacks doing menial labor which anyone with a satellite dish heard in full. The next day she was replaced with a white lady. This job was the second most dangerous - right after the drink lady. Suppose Max didn't get through the full glass and he spilled it or knocked it over or - as did happen with some regularity - he got angry at someone on the set and used it as a missile? He was never - NEVER - apologetic about anything. He took some glee when he was able to actually hit the person he threw it at. So in the midst of this studio chaos, the pail

lady and the drink lady had to be ever vigilant and ready to respond in a split second.

Under pain of something that would make death seem welcome. Max had not only the most vile tongue in broadcasting, he was hurtful. If a person had a limp, Max called them a demeaning name such as 'Hob Leg'. If a lady was wearing a tight-fitting sweater - well, she did that only one time.

Meanwhile down in South Carolina they had a blackboard and some lucky fellow had the assigned task of writing down the new, 'Max Robinson words for today'. The vodka industry had their best years when Max was on the air. These would be the days 'to remember' long after home dish C-band died.

David Wolford's Satellite Guide monthly publication and others who came into competition with him by 1983 quickly worked out that unscheduled (or at least unlisted) 'shows' like the Max Robinson Chicago feed, Merv Griffin and dozens of others were a prime reason why people were purchasing home dishes. So a Denver based publication (Channel Guide) began assembling the day/time/satellite/transponder-channel number for these special events when they were intercepted by watchers. Shortly they became known as 'Wild Card Feeds' and in the guide each week/month you could locate 'Entertainment Tonight' (for example) and be told which satellite to point at and when. By the early 90s, so many programs were being distributed in this manner a guide would carry ten or more pages of the listings. This had some secondary benefits as well. Say you lived in California and were a fanatic for 'The Jerry Springer Show'. But it appeared in your local area at a time when you could not be available to view, even though it was satellite fed many hours earlier. So to a guide where you found it was fed via satellite five days a week at 3AM California time on a specific satellite. Now you could tape it for viewing and there was a bonus - shows like 'Springer' were released hours, days in front of local terrestrial TV airing so you went into work and told co-workers everything that was going to happen on your favorite show even before they had the opportunity to watch it at home on their terrestrial TV aerial or through their cable system. And as an aside - this remains today (2006) one of the primary benefits to (still) own a home-dish system for this procedure has grown as the TV industry has grown and most of the shows distributed in this manner are not encrypted (that is, some twenty years after encrypting HBO occurred, 'General Hospital' remains available for premature viewing, at least on the west coast).

Of course not all 'wild card feeds' were transmitted in the clear.

While HBO and other cable programmers were threatening to 'scramble' their services, one provider was taking the steps to do so. Don King, fight promoter extraordinary, had heard enough about the Bob Behar's of the world who were intercepting special satellite fed coverage of major (boxing) events to be convinced 'his gate was open'. And he decided to do something about that. To encrypt a television signal over satellite in 1981 was a pretty stiff challenge. First of all, the only field-proven encryption system was manufactured by a company in Illinois called Oak and they had developed encryption they called 'Orion'. If you were Don King, and you had arranged perhaps 300 'viewing sites' spread throughout the USA (some in private clubs, many in theaters that were temporarily equipped to receive a satellite signal), the first challenge was to keep the actual satellite and transponder/channel 'quiet' until the very last minute before the event began. What this did was reduce the opportunity for casual tuners-in to locate such a feed. As 'fights-by-satellite' spread to be a viable distribution mechanism, entrepreneurs such as Miami's Bob Behar were usually a step ahead of the promoters. It wasn't hard to do.

A theater signed up to provide a big screen display of the fight would be sent special equipment to be installed ahead of the event and with the special equipment came instructions (which satellite, which channel/transponder, when test signals would be available). The theater owner would contract with a local firm to install the equipment and that's where the security came apart. In South Florida, for example, Bob Behar's Hero Communications was initially the only choice - nobody else had the experience to make a temporary installation. So here Don King's folks were, sending all of the details to Behar who of course would then use this information for his own promotional purposes. Such as - placing a dozen or more large screen sets against his building walls thereby allowing hundreds - often thousands - of South Floridians to gather in the streets outside to view the fight. Without paying a fee of course.

CSD reported all of this, often with crowd photos (impressive because of their size) and Don King Enterprises was a subscriber to CSD. In other words, King did not have to be a rocket scientist to work out he had a 'security problem'. Naturally the local theater operators who were paying big bucks to receive the same special satellite feeds were very angry about this intrusion and 'free viewing'.

So when King adopted Oak Orion encryption late in 1981, it was not a surprise. At the time, encryption (coding) was an infant science and the technology related to encryption was having a difficult time

with the marriage to satellite TV signals. The first few King fights encrypted went badly because of technology problems. If a theater location was unable to unscramble the signal by the hour the preliminary bouts began, panic time. A theater filled with hundreds of people, many or whom were fanatical and often over the legal limit for alcohol content, and nothing was on the screen but a test card; a recipe for riotous disaster (not unlike the reaction when the Napa, California cable system switched off a 49er game prematurely back in the 70s).

Unfortunately, the earliest Oak encryption devices were designed in a way that either all receivers were addressed (turned on and made to decode) or none were. As the count down to the fights began, King operatives had a 'threshold' number of sites where the decoders were not functioning properly. When that threshold was exceeded, the encryption was turned off at the very last minute to allow all sites - with working or non-working decoders - to see the telecast. Of course with the encryption turned off, any dish anywhere suddenly had the fights.

The home dish guys had this worked out and it would be accurate to say most fights the first year ended up non-encrypted for a variety of decoder problem reasons. Which pushed Oak to reconfigure their encryption system so that each individual decoder had its own unique electronic address. But that step was some time into the future.

Effective encryption was coming - of that there could be little doubt. By the end of 1981, it was possible for a totally automated home dish system to be preprogrammed by the installing dealer for nearly 100 TV channels broadcast from 11 different satellites. It ran the range from adult entertainment at night ('Satori') and 'Sesame Street' to the wide range offerings of the cable TV folks. It was, for at least the next three years, to be the cornucopia of TV reception - essentially anything one might wish or want from 11 or 12 or 13 satellites and growing monthly.

None of this was setting well with the cable programmers and HBO was leading the 'attack' on private, home dish systems. HBO began to 'tap' me as an 'inside source' in late 1981, somehow believing that I could or would feed them information which they could use to defuse the growing interest in home satellite dishes. Their primary concern was, "how many are there???" and they could read (as they did) the statistics in CSD like anyone else. A group of middle and upper management HBO people 'befriended' me in that era, through 1982 and beyond, hoping that through me and CSD they could somehow create a 'message' which would result in smaller sales-per-month totals and delay, as it were, their ultimate introduction of scrambling. HBO

had studied the Oak Orion system and found it wanting, as it would be only a short period of time before some clever Canadian viewers would sort out the Oak system and make defeating it widely available throughout North America. What HBO's Jim Bennett and Mark Cutten were after was some measure of the 'pulse of the capability' of the home dish industry to reverse engineer the various proposed scrambling systems, hoping that through me they would be able to give direction to their own ultimate scrambling decision. I was naively co-operative - the kind of thing that happens when you are invited into their inner sanctum in New York City and chaperoned into a dialogue with some of the brightest pay-TV programmers in the world at the time. What they did not realize was that I was the wrong guy - I knew what was happening and who was doing the anti-scrambling work but I had no knowledge of the precision technology required to bust Oak Orion, for example.

My comprehension of scrambling systems has always been on the surface, not in any detail, but HBO possibly never believed this. In CSD for September, 1981, I wrote, "Scrambling is coming - who cares!" which went on to point out that far worse (I believed at the time) to losing "a few channels to scrambling" was the sword of death each HBO public pronouncement left hanging over the head of the home dish industry. My point? That when they scrambled, home dish sales would adjust and go on having adjusted. That would erase the unknown quantity or factor from the equation and mathematicians are the only folks in the world who like solving for the unknown.

The only scrambling that appeared to work reasonably well had been developed by Blonder Tongue Labs for over the air pay-TV service; a doomed concept before it began because everyone from Congress to the broadcasters didn't want an 'over the air' pay-TV service to develop. BT and others such as Oak were playing around with rearranging the makeup of the TV image, a 'line cut and rotate' system where all of the lines in the picture were randomly jumbled up resulting in an image that was simply a blur of disjointed information. Because this was prior to high speed, low cost computer technology, the systems suffered from inadequate processing speed capacity; the ability to correct jumbled lines 'on the fly'. So what appeared to be a 'random cut and rotate' was in fact a pattern and once somebody had the pattern worked out, duplicating the same result with a 'piracy' decoder was not only quite simple but highly repeatable. These early scrambling attempts were based upon the premise that one master scramble at the transmitter would or could be undone only by receivers equipped

with the instructions required to reassemble the image in its original form. Individual receiving sites were not initially 'addressable' (the boxes could not be turned on [into] or off [out of] the programming from the transmitter) so when a decoder got into the 'wrong' hands, it was basically gone forever from 'master control'. Moreover, if someone could 'reverse engineer' the instructions wired into the 'decoder chip' in the special receivers, new piracy source chips could be (and were) manufactured on demand to satisfy pirate marketing requirements.

While special event promoters such as Don King toyed with these new 'security developments' to protect their gates, another broadcaster was being threatened with wholesale loss of programming if it could not 'secure' transmissions. CBC Canada was (and continues, today) in a unique position relative to their neighbor to the south, the USA. Even in 1981, an estimated 80% of Canada's population was within rooftop aerial or Canadian cable reach of real, live, American programming channels. Starting in the mid 50s, Canadian cable had built an industry on importing ABC, CBS, NBC and PBS channels from 'south of the border' and for the government owned and operated CBC and Canada's 'independent' TV networks to survive, they had to carry significant percentages of made-in-America programming. Over the decades Canada's bureaucrats have adjusted up and down the allowable percentage of American programming in a broadcast day, hoping to keep 'Canadian content' high enough that Canada's airways would not become merely a dumping ground for American TV.

American sourced programming has always been able to attract large audiences and with a population base only 1/12th that of the USA, Canada simply never had the financial or people resources to compete. Thus, subject to the bureaucratic mandates of the day, CBC Canada was in 1981 walking a narrow line between their own programming created in Toronto or Montreal, and, that they could buy from America. It was the latter, appearing on satellite, which had the Americans up in arms.

Back in the 60s (Canada's first television in Montreal and Toronto had a late start - September 1953 - at a time United States television had already reached one home in 3), when CBC went shopping for TV shows, it was able to convince American creators that because such a high percentage of Canada - even in the mid 60s - was able to tune-in US channels directly or on cable, some concessions had to be made. It was an interesting agreement that would allow Canadian outlets to receive and broadcast American shows one, two or three weeks prior to their US release dates. The Canadians 'knew' who shot JR before

the Americans would find out.

As long as Canada's stations only infiltrated a tiny percentage of US homes, this premature release of US programming back into America was not a problem. And then along came satellite and folks in Oklahoma with modest ten foot dishes were tuning in 'Dallas' episodes well ahead of the release dates from Tulsa and Oklahoma City stations.

"You have two choices," warned the US programmers. "Choice number one - you hold your releases until the same shows come out in America, or, you scramble those satellite signals." The CBC really had no alternative. It had to locate a suitable scrambling technology and put it into operation, fast, because the American programmers were adamant with their demand.

The CBC adopted Oak's Orion system and thus began the first 'Canadian based hacking industry' which to this day remains the primary source of serious piracy operations in North America. The original reasons I heard from CSD readers, who became embroiled in this activity, was their unhappiness with the CBC removing from Canadian home dish systems the popular CBC programming. Upon reflection, perhaps what the CBC might have done was to only scramble those pre-release American programming segments. Rather, they elected to turn on the scrambler and leave it on - including during 'Hockey Night in Canada' which is of course a Canadian institution akin to depriving American viewers of baseball or pro football.

The loss of Hockey Night turned CBC scrambling into an emotional, no-holds-barred revolt. And within six months 'solutions' to the Oak Orion were widely available from Canadian entrepreneurs with the home dish users swearing allegiance to anyone who might restore Hockey Night on their TV screens.

The CBC never intended for individual home dishes to be a part of their coverage. CBC (and other Canadian services) went to satellite for one reason - to relay their programming schedule to remote community TV transmitters. But for every such CBC-affiliated transmitter where an Oak descrambler could legitimately be installed there were 1,000 - 2,000 - more side-of-the-house 6, 8 and 10 foot private dishes who were tuned in across Canada before the scrambling began. Enterprising dish sellers in Canada's unofficial winter headquarters (Florida) quickly worked out that for a period of each year (typically November to April), temporary Canadian residents in the sunshine state were very promising customers for dishes as well - to allow them to not only follow Hockey Night 'live' but stay up with Canadian news and politics by remote control. The impact of all of this was to leave a 'grey market

mentality' mind set in dish dealer minds from Florida to the Yukon.

The CBC, meanwhile, was experiencing significant problems with the Oak Orion scrambling system. It had been designed with the northern areas in mind - specifically, where mains or local electrical power was often 'off' at unpredictable times for unexplained reasons. To compensate for this, the CBC had urged Oak to upgrade their scrambler system so that if a local receiving facility lost power, the restart of electrical service would within 15 minutes time cause the Oak decoder to restart. Only this was dependent upon a 1982-1983 computer interface which transmitted 'turn on' instructions to the decoders. And unfortunately for the CBC, this computer was experiencing a less than 50% reliability rate - for over half the time it simply refused to work, which meant that when Yellowknife lost power and their decoder quit, it might be hours or even days before the remote Toronto based computer turned it back on. Naturally folks served by this state-of-the-art system were very angry - a power cut would often mean no TV for hours or days until the computer came back on line. This in turn encouraged folks running installations such as Yellowknife to bypass the CBC entirely - to go to the 'grey market' where Oak-like decoders were available that did not require addressing from Toronto. In the favor of these grey market units, when the power came back on - so did the TV. No waiting for a computer to catch up with them from 2,000 miles away. CSD reported this in detail and the CBC had egg on their face - as well as splattered over the rest of their body. CSD was not popular with CBC execs!

"We aren't stealing their signal," Canadians would explain to me, "because it is not a pay TV service; it is a broadcast TV signal merely being scrambled to satisfy some contractual agreement Canadian broadcasters have had forced upon them by greedy American programmers."

Well, it sounded good if you said it rapidly and it cleansed the conscience of the dish sellers who suddenly found themselves dealing in bootleg decoders. And through the mid 80s and the dawn of pay-TV scrambling by HBO and friends, it was a precursor to much bigger encryption events to follow. The ease with which dish sellers accepted the 'grey market' availability of Oak decoders being sold to non-qualified dish owners would play a major role in establishing a mind set which would blossom when in 1985 HBO would finally seriously scramble their pay-TV movie channel. And naturally 'Hockey Night in Canada' played well on the beaches of my home in Provo as well when Canadian piracy box designers sent their products down to me for 'test and review' in CSD.

Provo was attracting more and more people through 1981 and at a minimum, once per month, some poor satellite soul ill-equipped to deal with Ed Hegner ended up being ferried from Fort Lauderdale to 'the islands' (always said as if everyone knew where 'the' islands might be and there were no other 'islands' out there in the Caribbean). Each had their own hair raising tale to relate upon safely returning to the US mainland and many would adopt the position of Rick Brown who thanked us for our hospitality but vowed to never again travel with Hegner. Doors blew out of Cessnas from 7,000 feet, Hegner routinely landed with only 'fumes' in the tanks, the trips down were always loaded with people-freight-people-freight until the back door (and the only door) was the lone open area remaining and then that was stuffed with more freight. Most of the people who came down on satellite-business were placed at an unusually run spot called 'The Island Princess', down the beach from the Cooper enclave some two miles with nothing between us and them but nature's most perfect white sand beach. Not a few of the satellite folks, over the period 1981 - 1985, found Provo so alluring they bought property there. John Ramsey was one of these and by 2000 John would have turned his early investments measured in the tens of thousands of US dollars into much bigger numbers as Provo's land prices exploded beyond comprehension. Because the Turks & Caicos was an 'offshore financial center' (in name only through much of 1981, we still had no bank on Provo!), and the American dollar was the local currency, there were many attractions and not much effort involved in creating 'untouchable accounts' there. This was pretty much following the similar offshore status of accounts in Grand Cayman, and to some extent the Bahamas, as well.

Television had become a 'big deal' to the natives and while my original plan was to create a combination of a free-to-air (non-scrambled, available to anyone with a TV set) channels, and optional pay channels, the hardware to allow this to happen was simply not maturing properly. And although SPTS Washington had keynoted off of the newly available US 'low power TV' license status, even with this rapid growth (more than 5,000 people and firms filed applications for licenses in the first 30 days following the FCC's announcement), the hardware which would make possible lower-cost over the air pay-TV simply was not ready. Nor, ultimately, would it ever become available.

Because Ike Blonder and Ben Tongue of Blonder-Tongue were my friends, and B-T had the best shot at making this technology work, Provo was in a position to become a testing ground for their designs

long before any real world testing could be done in the USA. It worked like this.

Provo as part of the Turks & Caicos was subject to local law. There was no law, of any kind, relating to broadcasting and to set up WIV-TV I had simply filed an application for a business license - much like someone starting a taxi or fresh food business. Absent any local-FCC, I was free to select my broadcasting frequencies, location for my transmitters, operating power and even my own over-the-air call letters! Which meant that within a few hours of new equipment coming off of a Turks Air or Hegner flight, we could be unpacked and on the air with trials. In the USA, the same procedure would require between 6 months and a year of advance applications filed with the FCC, often further delayed with public hearings, reams of attorney generated paperwork backed up with more reams of engineering statements and promises. All to be approved before a new concept could be 'tested 'over the air. And long before permission came, new technology arrived which forced you to start the process all over again - before 'real world testing' could be done in America.

I had taken the time to carefully explain this 'Provo advantage' to both the TCI Governor and the at-the-time Attorney General over a Grand Turk lunch one day, anticipating that if we grew into a major 'Beta stage testing center' on Provo, they would sooner or later begin to receive some indirect pressure from their British masters. Who would in turn be reacting to pressures exerted by the US government. I wanted to neutralize this before it happened.

The Guv. "In these tests, who benefits?"

Me. "The world. Products go from concept to testing in weeks rather than years. Everything relating to the advance of broadcasting technology happens more quickly and when a test is not perfect, as most will not initially be, adjustments can be made in equipment design and new tests conducted the next day or week. In the course of all of this, Provo has dozens, hundreds of extra tourists who have brought their equipment to WIV for just this purpose."

The AG. "We have no laws, no rules, no regulations regulating any of this. What do we need to do to support this effort?"

Me. "Do nothing. Don't adopt any rules, don't establish a local FCC because all that will do is create a bureaucratic layer of approvals and delays which will quickly negate the entire reason why people will be coming down here with their equipment."

The Guv. "And kill the goose laying the golden egg."

Me. "Precisely. If you get too much heat from London, talk to me

about it before doing anything. In the meantime, I think I can almost double the number of tourism dollars spent on Provo for the next year or two."

Which is precisely what happened, out of which came 'The Provo Hotel Association', the country's first promotional group supported by the people who would most directly benefit from the anticipated tourism growth. By the end of 1981, Provo's official population remained in the 600 region but in fact the real number was passing 2,000 and growing daily. The Grand Turk government had now created a full-time government presence here, first with someone to catch Hegner and cohorts bringing in merchandise so a 30% importation fee could be assessed, then shortly thereafter a local policeman. Their logic was a growing community needed to adhere to 'certain rules of law'. But any Government dollars spent on Provo had to originate on Provo and after overhead (the cost of administration) add to the treasury in Grand Turk. Some big plans were in the wind including (God forbid) a massive Club Med facility.

One of the satellite guys who discovered through me 'the islands' was L. Russell Keene (II) of Louisiana. He was a founding SPACE Board Member who knew me from the CADCO days because he operated radio stations in his home state and had been a CADCO customer (in fact, related to the infamous Sulphur, Louisiana CADCO cable TV fiasco). Russell was, well, 'different', than other guys. Most other guys. He had broadcaster-related 'connections' with a host of politicians including Louisiana Congressman Billy Tauzin. Russell appeared on my Grace Bay beach doorstep one day and advised me he was purchasing the Prospect of Whitby Hotel on North Caicos.

Now, if Provo was 'remote and undeveloped', North Caicos in 1981 was on another, distant, planet. Although it was close enough to Provo for us to create our second TV transmitter there, it was a gruelling 45 minute ride in a wave slapping outboard motor boat fraught with both danger and idiocy when you finally arrived. The Prospect could only be reached by infrequent, unscheduled, air taxi from Provo or Grand Turk, or boat, and the original British investors who built the 20 room facility in the mid 70s probably had never been there personally. Think of it this way. If you wanted to live a 'different' lifestyle, totally out of the 'traffic pattern' and not subject to any local law of any kind (it would be at least five years before North Caicos had even a government policeman) - North Caicos was for you. And Russell. As he explained to me, "I want a total getaway location where I can bring friends, send friends, and they will be left totally alone to do as they wish."

Indeed.

Shortly after his purchase, which was funded by liquidating his Sulphur radio stations and breaking up a family of 15 years, he appeared on my Grace Bay doorstep again, this time with an entourage that included Congressman Tauzin. 'Billy' had become an influential member of Congress, had been brought into the SPACE camp by Keene and then massaged by Rick Brown. We stood in front of a five meter dish which WIV used for receiving USA programming and had our images captured on film.

Tauzin was (and remained into the 21st century) one of the brighter elected members of Congress I had met or would ever meet, and I said so in CSD. While on Provo during a visit in 1982, we spent several hours reviewing the status of the home industry at that point and after I showed off reception from a Russian Ghorizont satellite in living SECAM color, his attention was riveted to remarkably higher quality video ('coming all the way from Russia!') than he was accustomed to viewing at home. The answer was, the Russians had adopted a French television system, that is SECAM, which to begin with uses 819 lines of picture information rather than the American (NTSC) 525 lines. Right away, they had a 56% 'better image' than American TV because of this. CBS, the American network, had only weeks prior to his visit filed an application with the FCC requesting permission to 'test high definition 1100 line television' using a new 12 GHz (Gigahertz) experimental satellite. Tauzin had pondered why CBS would be interested in such a 'test' - until he saw the Russian high definition images in the WIV control room.

Tauzin. "What CBS proposes is like this, then?" he asked. I agreed pointing out, "1100 lines is more than twice the present US 525 lines so it would be even better than what you are seeing here." Alas, CBS's test application was destined to remain in limbo and it would be the mid 1990s before 'high definition television' became a practical technology - all because of the simultaneous development of 'digital methods' of transmission and reception. But neither he nor I could foresee that future, in 1982.

Tauzin. "This is a pretty good place to live, yes?" I agreed.

"But why would you want to leave America for this?" I gave my stock answers and son Kevin obliged by producing some same-hour snared lobsters to go with the group to North Caicos. This was a bit like sending coals to Newscastle as for every lobster one could find in waist deep water on the Grace Bay beach there were 100 on the shoreline of North.

Keene would retain his ownership position in the Prospect of Whitby Hotel for around 4 years, gradually diluting it to people he enticed to 'come down' and enjoy the 'unrestricted lifestyle' of the islands. In fact, his theory of operating it as an enclave for people of a particular lifestyle persuasion was spot on but most of those who practiced this lifestyle were not into travelling in Ed Hegner style thirty year old Cessnas and then having their brains and bums beat to death in a gut wrenching 45 minute outboard motor ride. It was 'wonderful' when they finally arrived, but getting there was hell.

Keene was an interested participant in the 'Provo Hotel Association' and my memory tells me he put in his share of dollars to help promote the desirability of 'the islands'. When I suggested formation of this self-promoting group, there was an enthusiastic response as around 25 people gathered at 'The Island Princess'. The IP was the local hangout for anyone and everyone who had a 'deal' going. The slightly upper-class Third Turtle Inn was the favorite spot for people of substance but the IP was where the real deals happened. And they were many.

Cal Piper, wife Benecia, daughter Mary and son-in-law Scott were in charge of the IP. Cal was into anything and everything that would make him money, having transplanted his family to Provo's north shore from Florida a year before the Coopers and they were struggling to make it work as a standard holiday resort. Of course a major reason they struggled was we had no regular air service to our island and the majority came down with Hegner or Howard Hamilton, who was by this point doing his best, as a native local, to not only put 'foreigner Hegner' out of business but take over his lucrative enterprise.

Drugs. The here-today, gone-tomorrow status of the US program to interdict drug traffickers originating in Colombia created an ebb and flow of secondary activity on Provo and South Caicos. In any given three month period (pick one - any one) the United States would send a delegation to Grand Turk to encourage the British Governor to 'be more rigid' in enforcement of the stateside interests, and a special-ops force to Provo to 'interrogate' the natives, and then they disappeared to repeat the same process in the Bahamas; a travelling 'road show' more for glitz than substance. Provo was never a major drug center but South Caicos was for brief periods a 'primary' refuelling station for the druggies.

In 1981, I volunteered my family and equipment to travel to South Caicos where the 'Miss Turks & Caicos Beauty Pageant' was being held. You have to lower your standards a tad (several tads) to appreciate how a country of perhaps 8,000 with no real local media and very

little experience in conducting 'beauty pageants' might go about creating such an affair. The 'prize' was a trip to the 'Miss World' competition, assuming two things: First, that the TCI could select a 'winner', and, second - that somehow (by some real miracle) money could be raised locally to cover the costs of getting the selected 'beauty' to some faraway location such as Hong Kong or The Gambia for the big event. 'Miss World' allowed any 'country' with a winner, no matter how proclaimed, to participate and the standard was, well, not high to be there.

South Caicos 1981. Hamilton transported Kevin, Tasha, Susan and I there for a three day 'video shoot'. A government middle level bureaucrat, Bill Clare, had assumed the private role of 'impresario' and the plan was to create a report or TV special which would ultimately be shown on Provo, in Grand Turk and on North Caicos. The location was the Admirals Arms Inn, on a small hill overlooking Cockburn Town, perhaps a mile from the airport. South Caicos had the longest, best condition, paved air strip in the country at the time as well as a Shell Oil fuel distributor located at the airport.

It was this combination (long runway, fuel) which attracted the druggies. They could refuel on South Caicos and then make the 600 mile run to Florida or a shorter run to one of the Bahamian out islands under cover of darkness, typically flying just above the wave tips to avoid the always improving Florida based US radar surveillance systems.

Flying at altitude (10,000 feet for example) was a far better choice for reducing fuel consumption but of course at that height they could be 'interdicted' by radar from several hundred miles out. And when their onboard 'transponder' failed to appropriately identify them from the radar beams, the US forces immediately scrambled planes to intercept.

I ran into this activity wherever I turned. For example, at an amateur radio store in Miami where I often shopped for our ham radio needs on Provo, I stood in line one day behind a cocoa-colored skin chap who was buying, "all of your ICOM 220 MHz transceivers you have on hand." These hand-held two-way radios, around $250 each, were new on the market and had the special benefit of not being easily heard by US drug folks because the frequency band was uncommon. He bought ten, from memory, cleaning out the supplier's inventory.

My turn with the counter guy and I was naively impressed.

"Big sale," said I motioning towards the South American fellow now leaving the shop lugging a box filled with radios. "But he didn't buy any (battery) chargers."

"Won't need to recharge" was the curt matter-of-fact response.

I asked why you didn't need some way to recharge the radios "after a hour or two of use."

"They stick in double-A cells, use the radios for an hour or less, and throw them into the ocean" was his not very comprehensible explanation.

As he wrote up my purchase ticket I pondered what all of this meant; terribly confusing.

Unable to work it out, I begged a more understandable answer.

"Look - you didn't hear it here. When they fly into an island, one or two of these radios are left behind. The next time in, when they are 30 minutes or so out, they radio ahead to advise when they will arrive and this tells the fellows on the ground to have the fuel drums ready. There are 500 channels in these radios and each time they use a different channel for each island where they touch down. We sell more of these newly available radios through this store than any other outlet in America. And that's because the radios are disposable - the pilots toss them into the drink as they approach the Florida coastline and the guys on the islands couldn't find electricity to recharge them anyhow so that guy or someone like him will be back next week and clean out my inventory all over again."

South Caicos. Evening one, Friday, of 'the Pageant'. MC Bill Clare is well into his descriptive monologue, it is past 9 PM and dark. Without warning, dead overhead a small airplane back fires and switches on lights. An immediate reaction amongst the predominantly male local population on hand (hey - they were there to drink too much beer and chase the country's finest while the girls were dressed in skimpy bathing suits).

Out of a rear Jean's pocket one of the locals produces the same radio I saw in Miami. Switching it on, he mumbles something into the microphone and signals for perhaps a half dozen compatriots to follow him. Off they race in a battered pickup truck for the airport, to be followed by a drunken band of fellow locals who simply want to go down and watch the action.

Bill Clare. "Ladies and gentlemen. There will be an intermission of .... perhaps one hour. And then we will continue."

It was closer to two hours when the original guys return waving fistfuls of US 50 and 100 dollar bills. The party was just starting and the bartender at the Admirals Arms Inn was smiling from ear to ear. Eventually, the 'Pageant' resumed. I wisely sent Kevin and Tasha to bed - there are some things you should save to witness until you are at least a teenager and after an hour I pretended our video equipment

batteries had dissipated - my excuse to cease recording something which the participants would not want on tape when they sobered up on Saturday morning.

Provo's salvation during this brief period was the totally inadequate condition of the 'runway' (in name only) and the total lack of safety when landing at night. That didn't stop attempts to use our island, but it did cut way back on these attempts. One day several bales of marijuana mysteriously appeared near South Dock, where our limited sea delivered freight arrived. Fuel was available at South Dock and the undertones on island explained the free floating bales as 'a trade for assistance in refuelling a Colombian fishing vessel' that 'wandered in' one evening at dusk. No, not all drug products were sent by air. One local suddenly had $5,000 in his pocket and the night locks on the South Dock fuel tanks had been ripped off allowing someone to help themselves to an unknown quantity of diesel fuel.

On an island with no functional telephones to South Dock, and a 30 minute trip on a bad road, by the time word got back to Art Butterfield his locks had been breached, the deed would be done. And it was.

The Island Princess was a gathering spot for everyone who had an interest in this level of activity. Cal Piper was on a good day several shades to the left of the law - assuming there was any law - and he took his 'cut' either directly or indirectly by providing 'services'. The locals quickly worked out that Cal could point them in a certain direction at a specified time, such as South Dock at dusk on Friday, in return for which they would make a quick handful of US cash. It was into this unusual mixture of offshore clients at the IP that I stuck our visiting satellite folks who arrived largely because they had equipment to test and we had a facility to do so, quickly, and then if the tests went well, to be followed by abundant publicity in CSD. Most of these IP-housed satellite visitors returned to America with stories that went far beyond their 'Hegner experiences'.

Cal and family were always so far in hock for their over indulgence in building the IP that seemingly no amount of 'clandestine cash' could bail them out. But Cal was a very bright fellow, tempered with unusual street-smart skills learned by being there and being an active participant in anything and everything that might turn a buck. He had absolutely zero tolerance for anything (and everything) that might originate with the Government or any other symbol of authority. So he fought constantly with Provo Power Company, the expanding Cable and Wireless telephone company, and the very limited Government

authority as Grand Turk attempted to bring law and order to 'their wild west'. In response, Cal reached into the deck and drew out the 'political card' which allowed him to gain an extra couple of years of operating his own enclave without significant intervention.

Politicians in TCI's early experiment with democracy were young, inexperienced, and very poorly paid. A hundred dollar bill gained big favors, Cal simply built this new overhead into his budget and in return for this cash transfer locals with family or other close ties to the politicians were given the priority jobs - such as South Dock on a Friday night.

Most of the white locals avoided the IP as a destination for a night out because of the constantly ever-changing timbre of the IP clients. Lacking any effective local law enforcement, visitors with a passion-for-passion and fists simply 'took over' for hours on end, essentially holding the bar or dining room in submission as a hostage, while some petty grievance was argued out.

Having said all of this and having painted a picture of lawlessness, I should add that Cal and family treated 'The Coopers' with the utmost respect and tenderness for as many years as we cohabited Provo. Tasha, even at 8 years, was allowed to wander down the beach on her own and hang out with one of the Piper grand kids whenever she wished; we were that comfortable that Cal or Benecia would make certain she was properly disciplined and protected. And she was. Kevin learned his PADI diving skills from an instructor at IP, routinely spent the full day there and we never had anything approaching an ugly incident as a result.

Was Provo ever a drug center? We lived there and knew everyone who also lived there; a small community with no real secrets, certainly not involving something this 'open'. The answer is, no. Did some people, local and ex-pats, who lived there get involved in the drug business? The answer is unfortunately yes, including some very important local ex-pats who had sons and daughters in their late teens with too much time on their hands, and no local authorities to stop them from taking the wrong step at an unfortunate point in time. Fortunately for the Coopers, Kevin and Tasha were below the age threshold which caught up perhaps a dozen of the ex-pat white kids and essentially ruined them for the balance of their living days.

The late 70s and early 80s was a bad period when, if you were a white youth 17 to 25 years of age, living with your parents on Provo and carrying a US passport, trouble was just a sniff, scratch or snort away. One attractive white girl would marry a Bahamian of mixed

blood, sire him several children, and then one day in a Bahamian hideaway with American agents banging on the door, he would place a shotgun into his mouth with wife and children witnessing and pull the trigger. Another white late-teenager, barely past playing with his erector set, became a courier for the druggies flitting back and forth between The Islands and Florida, misusing his American passport. US Federal agents eventually caught him hauling the wrong stuff, putting the 'boy' away in a Florida detention center. His parents were the pillar of local white society.

Hegner and Hamilton, the barn storming ancient plane antagonists, to their credit were never overtly connected with any of this drug activity. Hamilton was an Islander and lacking US birth status was simply too closely observed each time he went in and out of Florida. And Hegner - bless his ornery hide - was breaking so many laws, rules, and regulations that he knew the last thing he needed was some 'federal snoops' chasing him from airport to airport out of suspicion he was running contraband - oops, drugs. In a word, Ed was 'paranoid' about being linked to the drug culture and did everything in his power to stay out of their way. And that included, to my own witnessing, him turning down very large sums of cash from folks who were urging him to transport them to some clandestine location 'below the vision of the US radar'. He had the skills to do this, and the street sense to make it happen. But he routinely said no to these big-cash opportunities and one had to admire him for his line in the sand.

Two incidents stand out in the Provo 'drug activity' battle years. One was a visit by then-Vice President George Bush (the first) to our island with a contingent of grey flannel suited guys and a team of technicians who wanted to gain British approval to build a new radar facility on Provo's Northwest Point. Bush's arrival sent Provo's grapevine into overtime speculation but nothing of significance matured from the visit - typical of the US 'on-again - off-again' approach to shutting down the drug traffic.

The second event will await our time line - when TCI's elected and very popular Chief Minister, native Norman Saunders, would be entrapped with the co-operation of the British while visiting Florida for his alleged part in providing fuel to druggies through a family owned Shell Oil distributorship located at the South Caicos airport.

Guns. It was something of a miracle that Provo had never experienced a murder; any kind, by anyone. Of course that blemish free record would change (and yes - it would be drug related) but as the British Governor well knew, with no real import customs office oper-

ating, guns and other weapons were freely brought in with only minimal effort. The local law said you could not have a weapon without a qualifying and registration process. I knew of nobody who paid any attention to that law. Us included.

My initial planning included no guns. That was before I met Cal Piper and 'The Lightbourne brothers' - not directly related to our builder Sam Lightbourne. In Oklahoma our family owned a single shot .22 rifle which we left there in Rick Schneringer's care. After being introduced to Cal's armament and the pistol-packing Lightbourne brothers I revaluated the original decision.

It was a difficult dilemma because one of our basic beliefs in selecting Provo was the total outward appearance of law and order - even without policemen. Twelve year old Kevin of course wanted to participate in the weapons procurement and in reaction his mother chose to give both of us the silent treatment for several days. We were in Florida when this decision was reached and naturally I turned to Bob Behar who as a member of the Cuban community knew about obtaining weapons without much effort. Bob had introduced me directly to Charles Dascal, Chairman of the Board for the Continental National Bank of Miami, and it was here that we opened our primary US accounts after leaving Oklahoma. Continental was a bank catering almost exclusively to Cuban descent Floridians and Dascal had been one of the first folks in South Florida to buy from Behar one of his home dish satellite systems. So it was all quite cozy as Dascal quickly became an ardent fan of Coop's Satellite Digest. I'd slip into the bank once or twice or thrice per month when in Florida and almost without fail Dascal would be told I was there and an extra hour would be used up while we talked satellites and drank Cuban coffee from tiny cups hiding the fact that one cup of this was the caffeine equivalent of perhaps ten standard US cups of coffee.

Behar sent me to the bank in my quest for weaponry.

Charles. "How is the enemy armed?" he asked. I muttered something about 38 caliber pistols, which was the only thing I remembered from Cal's armory.

Charles. "Kid's stuff. You need real fire power. Are you likely to be 'hit' by two or more at a time?"

Kevin, who was with me, thought the bank Chairman was talking about us being 'hit' as in 'shot' by two or more bullets simultaneously. He squirmed in the office's $5,000 leather chair.

Dascal, it turned out, was a paramilitary 'nut' (there is no other appropriate term).

"Check this out," and he opened what I had misjudged to be his business briefcase. The $2,000 hand tooled leather case popped open revealing a self folding weapon which when 'snapped' together was big enough to bring down an elephant, or a brigade of nasty folks charging at you.

What followed was an impressive and detailed explanation of a customized Eastern European weapon which Dascal obviously cared for very much. He carried this 'briefcase' with him whenever he left the comparative safety of his inner sanctum, and fortified, bank office.

"This control adjusts the rate per minute - up to several hundred," which Kevin quickly computed to be nearly 4 per second of 44 caliber equivalent chunks of lead and destruction.

Now we were instructed to follow the Chairman down an elevator into the security sealed sub-ground level garage where he and a handful of other bank execs kept their vehicles. His was a Mercedes but not your common garden version.

"Totally armor plated," he began, caressing his hand over the black highly polished exterior. "Bullet proof windows capable of withstanding direct 45 caliber slugs at ten meters. Tri-clad puncture proof tires with three stomachs," he continued. Cal Piper would have been very impressed.

He obviously lived in a world somewhat different than my own and I tried to suggest Provo was not quite ready for this level of self-protection.

He dismissed my comment by waving his hand as many Latinos do to emphasize a point. "That's not why I brought you here," and he pushed a tiny button on his wrist watch which in turn caused the trunk to swing open.

Now - there are car trunks and then there might be Dascal's car trunk. The lid as it opened revealed RPG (rocket propelled grenade) launchers, a pop-up machine gun ("This baby is controlled from inside the car by remote control; anyone chasing me is in for a nasty surprise!"), cases of metal tins holding US military grenades and perhaps a dozen hand guns of various sizes, shapes and automatic fire power. Plus of course, perhaps 200 pounds of stacked but ready to use munitions.

Kevin was terribly impressed. I was terribly concerned that someone who was Chairman of the Board of a bank in South Florida had to go to this effort and expense just to feel safe commuting back and forth to work each day!

"Now, let's decide what you want and I'll have your selection ready

tomorrow morning." Kevin's first choice was an RPG which when fired at perhaps 300 feet would have the ability to flatten the entire Island Princess Hotel. Boys will be boys and it took me several hours after leaving Charles to convince him we really didn't need to be that heavily armored. His last attempt at changing my mind was to suggest he could use it to, "knock sharks out of the water," when "they are circling my boat." Every 12 year old should have an RPG mounted on his 14 foot outboard motor powered skiff. It was no wonder to me that Kevin, until his untimely death at 31 years of age, would maintain an exotic personal arsenal in his bedroom.

Our ultimate choices were very modest; a couple of 38 caliber hand guns, and a .22 rifle modified with several large ammo magazines and a 'hold the trigger down and watch the bullets spew out' feature which the original manufacturer never intended (Kevin would have to be satisfied with chasing sharks using this tool and Charles 'threw in' a special ball-bearing supported tripod fully revolving stand on which the 22 automatic could be mounted so you could 'pretend' it was a machine gun). Charles was disappointed I didn't want to carry back his Eastern European fold-up-in a briefcase one man assault team weapon because it turned out he had his eye on an even newer, more powerful model and hoped I would take the old one off his hands. US ten grand for an automatic weapon seemed like significant 'overkill' to me - pardon the pun, please. Leather tooled briefcase, optional extra.

After a very enlightening two hours we departed the bank's security protected inner sanctum with the promise our weapons of choice would be delivered to Ed Hegner's temporary (as always) freight collection depot in Fort Lauderdale the next morning. And they were. No paperwork, no sale records - just cash, 'thank you!' painlessly transferred from our bank account to one used by Charles.

Over the ensuing years Charles was both a mentor and a friend. His knowledge of virtually everything going on in the Cuban world in South Florida and even Habana was an endless source of wonder to me; he was apparently 'Chairman of the Board' (in the best of Frank Sinatra tradition) of more than simply this Cuban refugee bank. A few years into the future I would have a really crazy idea about being slipped into Cuba clandestinely to interview Fidel Castro and Charles would play a key role in arranging this for me including the meeting with Castro. But I digress and jump ahead of the 'time line'.

In 1981 I was a healthy and vigorous 43 years of age. Some people turning 40 have a mid-life crisis. Looking back as one does when passing 65, the only wonder I have about that period in my life is that

somehow month after month without fail, without excuses, without a reliable air service into and out of Provo, Coop's Satellite Digest managed to not only come out on time but was actually about to become a twice-a-month magazine; every two weeks. I could and did write anyplace where my always-with-me portable typewriter could be opened and fed with a sheet of paper; Charles carried his assault weapon, me my typewriter. I wrote in Hegner's airplane on the 4 to 6 hour flight in both directions. I wrote while waiting in airports all over North America (and beyond). I wrote in snatches as short as five minutes while waiting for Charles Dascal or Bob Behar or someone else to find the time to see me. When sufficient written pages had accumulated to create a magazine, and the magic day arrived for the next issue to go together, I found myself initially either in Oklahoma, later after moving our publishing to Florida, in a Holiday Inn in Fort Lauderdale surrounded by tens - no hundreds of linear feet of typeset material, a can of paste-up glue, stacks of photographs and sketches and typically 6 to 12 hours to create a 48 to 96 page issue.

If you have never done 'paste-up' of a publication personally, you won't be impressed with what follows. Every printed page begins as a blank sheet of paper, a specially formatted sheet of paper with photo-invisible blue ink lines indicating where the two or more columns on that page will go. The tens or hundreds of feet of 'galleys' - the typeset material which would be arranged to create the magazine - were taped or stuck up on walls throughout the room where the magazine was taking form. A portable wooden layout board, a handful of sharp Exacto knives, rulers, scissors and glue completed the tools. The very rare and occasional visitor who might catch me doing paste-up was usually intimidated by the circus atmosphere of the room. Holiday Inn maids in particular knew they had a 'nut case' on their hands when they arrived to change linens and were forced to tippy-toe through long strips of paper hanging from every imaginable room wall and flat surface - including the ceiling.

The first rule of this line of work is, "don't think about what you are doing- just do it." In other words, begin with the galley strips for what your mind suggests will be page one and start snipping, cutting and pasting. If it took more than 15 minutes to go from a blank sheet of layout paper covered only with blue lines to a complete page ready to hand to the printer, it was too long. At four pages each hour, 96 pages required something around 24 hours to complete. Fortunately, in 96 pages of CSD we routinely carried 50 pages of advertising so that reduced my layout chore to a mere 46 pages. At 700 words per page,

a typical issue ran into the 30,000 word range which was reduced further by a wide range of photographs I had shot personally or collected, and, some artwork polished by an outside artist following my legal pad sketches scratched out earlier in the month. Thus, 46 pages of actual paste-up at 4 pages each hour ran to a 12 hour day (or more often, a 12 hour 'night' since I seldom had the luxury of doing this in daylight).

Of course this also depended upon everything being absolutely correct, no missing gallies, all advertisements having arrived from distant points ready to go into the magazine in a timely fashion, and Ed Hegner's totally unpredictable flight schedule. My mid-life crisis was being a workaholic with no time for anything - often including eating for a couple of days. By 1983, as CSD grew and the magazine's two issues each month became ever more complex, it was only because I had the 12 hour per day support of one Carol Graba that made it even remotely likely we would get from issue to issue without crashing and burning. But that, again, is getting us ahead of our time line.

CSD was by late in 1981 starting to take in some quite significant revenues. It was a good thing because between the money-losing WIV adventure and the very expensive travelling life style I had opted into, costs had escalated well past my halfhearted attempts to control them. It came as no surprise to me, although I certainly did not wish it to occur, that one day while laboring on a Provo sand dune with a new satellite dish, a medium sized man speaking with a distinct New England accent arrived in our Grace Bay facility in an island version of a taxi.

"My name is Jim Rideoutte," he began; " I am the Revenue Service Representative for the Embassy of the United States in Nassau, Bahamas."

Nassau would be 500 miles from Provo as the crow flies; Ed Hegner would of course make it a slightly longer trip because he navigated by following the Bahamian island chain always mindful that if we 'went down' it would be best to have an island in view as a target for ditching.

"Revenue service representative," I repeated. "What is that?" My heart already told me the answer.

"IRS."

OK, so here I was standing on a white sand dune adjusting the feed on a new satellite dish, sweat pouring from every pore in my body, and up walks a guy dressed in a grey flannel suit representing the one agency of American government that sends chills through your body. I did not cool off, rather I began sweating even more profusely.

"How - how can I help you?" I stammered, dropping the wrench on my foot and climbing down from the elevated perch. I thought I knew that answer as well.

I ended up after an hour or two of conversation over a jug of Susan's ice tea actually liking the guy. At one point I even began telling him about my prior experience with the IRS - the one in Oklahoma where Rick Brown negotiated a settlement because I turned myself in without being snared by their net.

"I know about that," he smiled, pulling a thick folder from his well worn, decades old leather case. "That's why I thought you might be the perfect guy to help us down here."

Excuse me, I thought. "Help the IRS?"

He apparently read my puzzlement.

"There are people living here - not including you, we know that - who are making really big dollars engaging in some questionable activities. I've been here 18 hours now, staying down at Third Turtle, and it is our sense that if we had someone who lived here feeding us some tips, it would be a major help to us in closing some investigations we have under way."

Great. How many Americans, living outside of America, have the opportunity to become a snitch on fellow Americans? And how does one gracefully say "no, thank you" to a guy who can snap his fingers and create havoc for you, your family, your friends and probably your pets as well?

We talked it out for another couple of hours. The message I was getting was, "Help us and you won't have a problem from us. Don't help us and - well, we can make life pretty miserable for you." Being harassed by the IRS didn't sound like a suitable option but snitching on folks like Piper and Hegner was not a very friendly activity either. And it wouldn't take any information from me for the IRS to nail either or both of these guys on their own if they really felt the need to do so. Or any of the other 100-plus Americans now hanging out on 'the island'.

"Have you proposed this to anyone else here?" I asked. The answer spoke volumes for my chances of avoiding their 'request'.

"Nobody else here has such an interesting history with us," said he, fingering the file folder.

Susan had drifted in and out of the room where Rideoutte and I were sitting and I could tell from the lines growing on her usually smooth face she had picked up the tone of what was happening. Susan's understanding of our 'tax status' was basic; we lived outside of the USA, met the qualifications for earning income offshore, and the rules

said we could earn around $75,000 a year and pay no taxes. Moreover, CSD was owned and published by an offshore corporation (West Indies Video Ltd) and it in turn owned our Grace Bay property and buildings as well as the television (and soon to be radio) stations. We lived quite frugally even if West Indies Video was gathering in quite a large sum of money annually through CSD.

What Rideoutte hoped to obtain through me was some direct banking leads for a number of people who were Americans but calling Provo 'home'. They, too, were making use of the '$75,000 rule'. Like us, these folks had to maintain at least one bank account in the states simply because there was no other reasonably convenient way to bring in supplies from Florida or Minnesota or New Jersey.

"You bank with Charles Dascal," he had said to me, perhaps emphasizing Dascal to make a point. "We want to know where some others," pointing to a list he produced from his leather satchel, "bank in America. Surely in your television operation you receive checks from these people for TV services such as advertising. Is it asking too much for you to copy off the banking information and forward it to me in Nassau?"

In fact, nobody on the list ever wrote me a check, possibly because we had no bank on Provo at the time. Piper and Hegner, both advertisers on WIV-TV, paid in cash. Or kind (Hegner, for example, deducting his advertising bill from a current flight charge to Fort Lauderdale). Provo's ex-pat Americans were cash folks, almost to a person. And I told him so.

"But sooner or later you'll find something that can help us," he responded. "That's all I am asking - it seems like a 'fair trade' to us."

'Fair trade?' Unsaid was what they were going to do for me - or more to the point what they were not going to do for or to me - if I cooperated. I thought the best way out of this initial meeting was to act positive and then drag my feet in providing the information. As it would turn out, after this session, Rideoutte would battle the Bahamian and the TCI telephone system calling me on perhaps four or five occasions, 'just to check in', and what he did not realize when he arrived there was that several folks immediately figured out who he really was and why he was on Provo. More than a year later, an American in the real estate business would comment to me over a beer, "That Rideoutte guy who was down here last year seemed likeable enough - did you know he retired last month?"

I did not but the look on my face probably marked me for life with this particular chap who was never quite as open with me again.

I obviously did not have the 'stuff' to be an undercover agent and for whatever reason as the circumstances worked out, I never became one.

That there was starting to be a sizeable sum of American dollars floating around Provo could be measured by the eventual opening of the first Provo bank (a branch of Barclays from Grand Turk), and the rapid arrival of as many as six American and Canadian attorneys who promptly set up competitive shops on the island. Real estate sales were fuelling this, some of these directly related to the satellite folks who flew down to test equipment and then if they were not in a position to buy Provo land personally (many were hired engineers, and engineers were then and remain today badly underpaid for their skills and endeavors), they returned home with a combination of stories that typically began with descriptions of an Ed Hegner plane ride and ended up with a glowing description of Provo's white sandy beaches and largely unmanaged legal structure.

At the second meeting of the Provo Hotel Association I suggested that we create through WIV a series of half hour television programs which would visually portray the glories of our island. There had been discussion at the first meeting about the 'best way to promote Provo' and all of the tried, true and tired avenues were trotted out for discussion. I volunteered to place some material extolling our good points into some travel magazines (which I did) and one of the suggestions was that we as a group 'comp' a group of travel agents to Provo for exploratory visits. Folks who work in the travel industry are often the first contact point for people planning a vacation and some well placed suggestions concerning a trip to Provo from a travel agent will often swing a decision in our favor ("I was there last month, it is wonderful!"). The way you get this to happen is to arrange a cost-free flight and cost-free accommodations on 'the island' for travel agents. In other words, you 'buy' their attention and hope their visits come off well enough they go home and feel obligated, or obliged, or actually enthusiastic about, recommending Provo to others. If this was the music business and travel agents were radio stations, this would be called 'payola' - gifts in return for playing the records and labels you represented.

As a group we knew how this worked (and that it did work) but nobody on Provo had any experience with actually making it happen. In a word, we were 'naive' about the mechanics. And because we were naive, for the first year or so most of these 'gifted trips' turned out very badly for Provo.

Problem one was getting them to 'the island' in a good frame of mind. Which pretty much ruled out Ed Hegner as a transport medium.

But every door closing often leads to a new door opening. Although Provo's one runway continued to be in miserable shape, a couple of secondary airlines had begun to talk about serving the island with a flight or two per week. One of these, Gulf Air, was already going to Grand Turk's paved runway and while this would leave folks on the wrong island and subject to the Hegner-class of jitney air flights for the last leg to Provo, it had possibilities.

The challenge here was to create a 'package' that began with airfare from Miami (or Fort Lauderdale) to either Grand Turk or Provo, then accommodations while on Provo, and finally the return trip to Florida. No single element of this was doable without some significant support. We had the Third Turtle Inn, still owned by Dickie duPont and cohorts, Piper's Island Princess, a half dozen 'guest houses', and a new ten room 'hotel' being built near South Dock. Plus of course the Russell Keene North Caicos facility, which presented its own unique problems (how travel agents coming down for an 'island experience' would cope with the 'regular' clients staying there was a significant unknown). The ingredients to 'show off' Provo were more or less in place, but connecting the dots was fraught with obstacles.

The Third Turtle Inn, built by duPont, and Ludington money from Alabama, had only a single original purpose; a place to 'put people up' when they somehow made their way to Provo to inspect the thousands of lots for sale. And it was operated more or less as a 'private club' with no real static membership - if you were on island to look at land, you became a temporary defacto member of 'the club'. Many of those potential buyers arrived by private yacht and the Third Turtle Marina was a safe anchorage and a captive clientele for TTTI. While TTTI was catering to people with 50 foot - sleeps ten - yachts, the IP was housing guys from Colombia with large metallic bulges at their waistband. It was an eclectic mix. Management at The Third Turtle mostly consisted of semi-pros who at least knew how to spell advertising and promotion; Piper and others, au contraire, were trying to poor boy the entire exercise.

For starters, each had a friend or two whom they hoped to get onto a 'free flight to the islands' disguised as a tourist agent. It was petty thievery and a constant challenge. Through my magazine office established in Fort Lauderdale it was my responsibility to 'verify' the authenticity of the names put forward to receive a 'free trip' down and back and more than half of these failed this elementary test.

My office: "Hello, I am calling about a possible trip and want to speak with someone about flight connections."

On the other end: "Flight connections? I'm a plumber and don't have any such business."

Cross that guy out; another example of Piper (or another) trying to get someone down to fix his pipes without having to pay the cost of the air travel.

Ultimately 'version one' of The Provo Hotel Association was doomed to failure. We needed more professional hoteliers, a reliable, comfortable way to travel, and less deviousness on the part of the local merchants. We would try again in 1983.

As 1981 wound down in the home satellite industry, some very pregnant changes were taking place. From the first show in Oklahoma in 1979, folks who wished to become dealers selling home dish systems went directly to the manufacturer, such as Avcom, to purchase their equipment. Avcom sold receivers one at a time because that is how they were coming off the manufacturing line (which in truth was less of a line and more of a hand wired long laborious trek from blank cabinet to working satellite receiver). As dealerships became profitable, dealers would buy up to five receivers at a time and receive a better price-per-receiver as a result.

By late in 1981, a new level of business had evolved; the distributor. What the distributor offered to the Avcom's of the industry was bulk buying power; 25, 50, even 100 receivers (or antennas, LNAs, etc.) at a time. The distributor became a stocking middleman, a shop that had what you wanted when you wanted it, because they bought in sizeable quantity. They took their 15-30% out of the 'middle' to pay their own overhead.

Some dealers grew into distributorships (Starview in Arkansas, for example). But the most impressive distributors were launched from scratch by people who had only minor prior experience in the industry; each was on a fast rising learning curve. National Microtech, housed in a 19th century cotton warehouse in Mississippi, was a prime example of this new era. What NM did was go to the primary suppliers of receivers, LNAs, antennas and accessories and guarantee them cash money in exchange for bulk delivery of their products. This created a very important 'ripple effect'.

Industry pioneers such as Andy Hatfield of Avcom had struggled to create enough cash flow to build their own businesses. Hatfield and wife Pat began on a card table in the basement of their home in Richmond, Virginia; he was a customer service rep for IBM and she a school teacher. Prior to the satellite revolution, Andy's ham radio skills had created a line of aircraft radio eavesdropping devices that allowed

enthusiasts to listen-in on the local airport radio activity. As a private pilot, he had a feel for this group of people and his products sold well enough to keep him busy an extra 40 hours each week after he left his IBM briefcase behind.

When Andy saw the first public disclosure of home satellite TV, the Walter Cronkite CBS Evenings News in late October 1978, he was hooked. Using savings from his aircraft radio business, he purchased a commercial Microdyne receiver, a ten foot dish and set it up in his backyard. Over the next six months he would 'reverse engineer' the Microdyne receiver and using his own creative skills modify it for commercial reproduction. Microdyne demanded $7,000 at the time for the receiver; Andy's copycat version introduced at SPTS 1979 in Oklahoma City would go out the door for $3,000. Microdyne had a sizeable plant and a staff of 100 as overhead; Andy had a card table in his basement and wife Pat as dedicated labor. She kept the records, drew the final schematic diagrams, and when sales began, banked the receipts.

Andy's next step was to 'farm out' the many individual circuit boards that made up his completed receiver to local people who could sit at home on their own card tables and wire up the circuits required. At this level he was creating between five and ten receivers a month, but still without any real 'business overhead' save the space in his basement at 10139 Apache Road, Richmond.

As the industry grew, farming out circuit boards became less and less satisfactory. So too did combining 40 hours per week at IBM with 40+ hours at Avcom. Pat quit her school teaching first, then Andy resigned from IBM. By the end of 1981, Avcom was a 'real' business with real employees, an address of its own and an increased production capacity.

Andy did not jump at the opportunity to sell receivers to National Microtech, even if that meant a guaranteed income each month, because when you took 25% from $3,000, Avcom would end up with $2,250 per receiver rather than $3,000. And for the moment, at least, Avcom was selling all of the receivers it could make - at $3,000 each. But others were not in the same position. KLM, the firm that turned from amateur radio equipment to satellite receivers (and later antennas and accessories), following the licensing of the David Barker Image Rejection Mixer design, had ramped rapidly to a 200, then 300, and now 400 receiver-per-month capability. Some of this product initially went to brand name distributor Channel Master, of course, but that still left capacity for the folks at firms such as National Microtech. KLM quickly

became an 'OEM' house - original equipment manufacturer - for a variety of labels including National Microtech.

Every manufacturer tried to promote his product as somehow unique. KLM had the Barker designed mixer, Avcom had the reputation of being a 'Cadillac' of satellite receivers (only partially deserved, as much a result of the 'Hatfield' persona as the performance of the receiver), others had their own niche (including being cheap, dirty and easy to repair). National Microtech, perhaps wisely, saw that if it could create 'NM branding' using products which carried not the KLM or Avcom brand name but rather their own, this would be another way to establish 'product identity'; 'branding'. Almost anyone could figure out who was actually 'making' the 'NM brand' of product - most did not care. It was a shell game of rapidly changing facades and the truth was often best left covered up.

What NM did first and well was to extend a helping hand to new, would-be dealers. Boss-man Dave Fedric was a good student of human psychology and after attending a few SPTS shows, worked out by talking with first-time attendees what worried them most. He would later explain to me, "Our sales plan was triple-sided. First, we wanted enough product to ensure good pricing. Second, our dealer customers had to be backed with technical assistance and rapid shipment. This is out of recognition that dealers sell systems one at a time, and when one has been sold, then and only then do they need or can they afford the equipment. And third, as rapidly as possible, we needed our own products with our own unique features to differentiate National Microtech from the competitors."

The September 1981 issue of CSD announced a new NM product with the provocative claim, 'Birth of a Legend'. It was an antenna; a fiberglass antenna, with some visually strange features. The antenna, while parabolic in design, was square, not circular. And the 'square' was turned on its axis so that the four corners or points were located more or less at 12 o'clock, 3, 6 and 9 o'clock. The advertising copy used phrases such as, "Microtech's new Apollo is so far advanced over our competition in features, performance and cost that we feel Apollo is destined to become a legend in the satellite industry."

The truth was more amusing than the hype. Fedric's firm had their own contract trucking carriers to deliver complete satellite systems to dealer customers. And one day he was watching as his workers were struggling with the round-like-a-circle dishes to load them into trucks and trailers. A ten foot dish was simply not easily manhandled into a 9 foot 4 inch wide container. Fedric, creative if not exactly an engi-

neer, asked the workers to bring him one of the antennas. Then he located a skill-saw and proceeded to lop off the sides, turning a ten-foot circle into a nine-foot square. Then his technicians tested the 9 foot squared-remains and found (much to their surprise, perhaps) that it worked essentially the same as the original ten foot circle.

That was all Fedric needed for verification. From that point onward, his antennas would be square and 9 foot across - easily stacked inside of transport trailers and as a side benefit more antennas could now be carried in each load.

Fedric never pretended to understand the finer points of the technology and as I would later explain to him, the very outer edges of any antenna, without respect to the size, contributed only a few percent of the total signal to the system. And, as I recall sitting in Anaheim at the satellite show there and drawing it for him on a scratch sheet, the antenna feeds from Chaparral and others, which NM sold, further limited the contribution from the outer edges. What he did was take a cake and scrape off the frosting. The basic cake remained and it did enough of the original job to let him get away with this skill-saw 'correction'. National Microtech's "X9" would be a big seller, if never quite becoming 'legendary'.

November 1981 in Anaheim, California; The Disneyland Hotel. It gets bigger and more impressive than this, but not much. From a Junior College in Oklahoma in August 1979 to Disneyland Hotel in November 1981 was all by itself a measure of how far home satellite systems had come in barely two years time. This was a totally Rick Schneringer enterprise and what happened here was either to his credit or dismay. It would turn out to be a bad judgement call.

Schneringer, like Fedric, was thin on satellite skills. He knew just enough to enter the correct satellite into his bedside table SatFinder remote control to watch the adult service Satori. Somehow, in his love affair with watching bouncing tits and bare assed hunks night after night he decided that satellite TV should be promoted as a 'high quality, big screen video service'. He had recently acquired a 50" projection set which made parts of the human anatomy 'larger than life' and it was his opinion anyone who saw a male penis blown up to the size of a Doberman Pincher would be a satellite fan for life.

So Anaheim was promoted as the 'Satellite Video Show' and to support this theme, large screen television sets were strategically placed throughout the exhibit hall and Disneyland Hotel, with Schneringer going to the Southern California big screen television industry to create special seminar sessions. It was a disaster for a theme. Where someone

with skills should have been in charge of very carefully selecting which satellite feeds would be displayed through what satellite receivers, it was a catch as catch can approach. Many of the satellite services on display in their 50 inch glory were by their own technical limitations 'low definition' to start with (a movie made in 1936 no matter how pungent the story line simply did not impress anyone in its oversized black and white blur). This was further complicated by the selection of low-grade satellite receivers which muddied the reception. If Schneringer sought to impress the public and general press with the 'clean, distinct, life-like images' delivered via satellite, he failed miserably.

He would later tell me he had hoped to provoke a large scale interest from public display locations - bars and sports clubs - where big screen TVs were popular. What he got instead was tens of inches of bad press and an almost universal recommendation from the journalists that, 'big screen satellite TV is promising - but it has not yet arrived'.

Of course it had arrived and it was working just fine. But not with X9 antennas and cheap receivers. Schneringer simply 'got into bed' with the wrong crowd in Anaheim. A fellow named Bob Maniachi made his own bed in Anaheim. Maniachi headed an importing firm under the trade name of Boman Industries and over the preceding decades he had built it into a major supplier of car stereo and sound systems including selling to 'The Big Three' auto makers. Maniachi had visited SPTS previously, and then he went to work using his Asian (Japanese and Taiwanese) sources for auto stereo systems to entice some Asian firms to produce home satellite equipment. This alone was a significant achievement as the entire American home industry was barely selling 2,000 systems per month and Boman, to entice the Asians, had to itself allude to 1,000 Boman systems per month. But Maniachi had the bucks and the charisma to at least make it to Anaheim with product to display. From that, all hell broke loose.

Maniachi had a substantial work force at his Downey, California facility but nobody there who understood microwave electronics (in itself a substantial technology leap from auto sound systems). So he self-educated and went to work to fabricate the major component parts of a home system to be sold under the Boman label. His display in Anaheim, not especially flashy and hardly pretentious, was totally keyed to price. His prices scared the holy crap out of every other supplier on the floor and Taylor Howard in particular.

The three major parts he first honed-in on were low noise amplifiers, a satellite receiver and a ten foot dish. His display said anyone

could buy any of the three for $399 each or $995 if they purchased a complete system (all 3 parts) from Boman. This was in an industry where the receivers (alone) had only recently sunk below $1,000 and dealers were still paying upwards of $2,500 for the same three parts from firms such as National Microtech. In fact, the lowest at the time CSD advertised prices for a complete (3-part) system was $2,400 (a do it yourself semi-kit from Starview Systems) and $2,895 (Via-Sat 10 foot dish system). And buried in the back of his hodgepodge display, what appeared to Taylor Howard to be a total 'knockoff' of the Chaparral Polarotor feed system.

What Boman, perhaps wisely or because of just dumb luck, failed to do was to show an operating system. Not all 3 parts would turn out to be of suitable quality but then people were so impressed with the 'price' and Boman was after all such a 'known name' in electronics that Maniachi's 'charm' had a magnetic effect on attendees. What saved the industry, for the moment, was Boman's inability to deliver product - that worked properly or that would satisfy the demand $995 created. In fact, a Boman sales rep let slip they had not nailed down specific Asian suppliers at that point - but based upon orders and interest, their next step would be to, 'go to Korea and get the best pricing we can'. An interesting backwards way to enter a business - and leave a trail of debris in their wake. Taylor Howard's primary concern was what Boman intended to do with their automatic polarization switching feed horn - at about half the price of Chaparral's product. Lawsuits would dog Boman, Chaparral and others including ADL, exploring the origins of the polarity switching feed for a decade and a half; the legal fun was just beginning. Boman and Maniachi would be an interesting study in slick, smooth sales hype for the next several years and their impact would leave a mark on the industry which would be difficult to erase.

Name-brand professional manufacturers such as Scientific Atlanta and Microdyne continued to appear at home dish show conclaves, mostly because to not show would be to perhaps miss out on some exciting new direction this unpredictable young industry might take. Scientific Atlanta, officially 'out' of the home terminal business following pressure from HBO and the cable industry, was feeling their way through a tentative arrangement with mail-order catalog supplier Heathkit including participation by major brand name Zenith. The S-A supplied hardware had certainly dropped in price - now $6,995 through Heathkit after $37,000 when sold direct by S-A 2 years prior. Between the Anaheim Satellite Video Show and the next scheduled show (Fort Worth, Texas in late March 1982) Taylor Howard took a

well earned leave as SPACE President to tend to some growing business (Chaparral) and family challenges. A new leader, Tom Humphries who had been appointed as head of the Microwave Associates - M/A-Com home system marketing plan, took over from Howard. Tom and I first became acquainted when he was a sales representative for SCI, the Texas firm that in 1978 grew into a major supplier of low noise amplifiers (LNAs) for the cable and broadcast industry. It was Humphries who had hung out in my Oklahoma City office at CATJ and as a result learned first hand and early about some exciting new Japanese transistors that would ultimately make SCI a LNA powerhouse. Neither he nor I knew it in early 1982, but he was also about to 'jump ship' and totally turn his life around by fleeing to Provo in the Turks & Caicos where he would hang out first as my (long term) house guest and later as a certifiable beach bum for several years.

A cease-fire of a sort had been called in the Washington legal court. Following Rick Brown's SPACE coming-out-party in Washington over the Easter weekend, throughout 1981, no serious legislative threats surfaced and Brown was wrestling with how he could turn this industry into a money spinner for his law firm. Around two dozen firms were paying $500 a year to be sustaining members (essentially, all manufacturers), another 120 were paying $150 a year as a dealer or distributor, and not very many (a few hundred at most) paid $35 per year as an individual who either owned a home dish or who wanted to own one. Add it all up - $35,000 give or take a few thousand a year. Not big numbers and Brown's plan looked for a budget of that much or more - per month. Clearly something very dramatic had to happen to either fuel support from the industry or the home dish world could find itself looking for a new Washington representative. The reality was Schneringer's thrice-annual trade shows were an attractive 'financial target'. He was taking in more net dollars from a single show than SPACE all year long; several times as much in fact. Brown's sense of priorities were urging that SPACE become a show promoter so it could in turn build up funding for his Washington representation. There was a battle looming and Schneringer would respond to the SPACE attack with his self-described, 'battery of attorneys'. Immediately following the Washington show, Brown had advised the SPACE Board he needed more money if the industry was going to be properly represented (read 'protected') in Washington. SPACE Board members gathered in two rapidly called sessions and created something called 'SPACE Pioneers' - firms who were ready and able to kick in $300 each month, a major step up from $500 per year. What Brown needed was 100 such firms

to satisfy his initial SPACE budget plan.

Although home system sales rapidly grew during 1981, the overall numbers were still only impressive in a minuscule way. In January 1981, CSD reported an 'annual volume' of 4,200 systems - 350 per month. This grew to 2,400 per month by the end of 1981 for an annualized volume of 28,800; a huge increase but still small time in the larger scheme of 100 million US homes. Equipment shortages were a major contributor to the stunted growth cycle. TVRO sales were following a 5-month-on and 7-month-off cycle; between May and September business was good. It was at a low ebb in February-March. This created a backlash effecting the OEM or original equipment manufacturers. If they based their business planning on sales in February - April, by the time July arrived they had run out of component parts to manufacture. Component parts (the transistors, resistors, special microwave items) typically had 'lead times' of 90 days-plus and manufacturers were essentially in the same boat as I was in 1970 when I found I needed tens of thousands of specialised parts for the All American Sports Amplifier and only weeks to locate them.

LNA or low noise amplifiers were still especially vulnerable to shortages and when the peak selling season arrived in August 1981, LNAs were simply not available. This created a panic with dealers who were accustomed to only placing an order for what they needed after they made a sale. Which was too late. Coming out of the peak selling season, a lesson had been learned about better long-term planning; all a part of the developmental curve facing a young industry.

"In all of my years in electronic sales, I have never seen so many liars, so much out and out fraud, as I have witnessed in this industry!" Speaking was a thirty year veteran of the consumer electronics industry from Cleveland. "People seem to have the idea that sales are to be made at any price; that the seller has the right, even the obligation to say 'anything' to make the sale."

New SPACE head Tom Humphries in retort. "People are absolutely captivated by the excitement of selling and delivering pictures from space. Normal business caution is thrown to the winds. The smart buyers know, down deep, they are being lied to, but their emotional attachment to space television is so great that they toss their concerns aside and charge ahead. The most vulnerable are those who have no technical field background and they swallow everything they are told. They come to a show, sign-up for three super-duper terminals from suppliers who have exaggerated the abilities of their equipment and the truth will only hit home when they try to install the three systems and

they don't work as promised."

At SBOC Houston in November 1980, 40 firms exhibited. One year later, SVS Anaheim, only 20 of these remained in business. In that year, one of the casualties was David MacZura and his SatFinder Systems business. SatFinder had pioneered preprogrammed dish movers - the ability to direct your satellite dish to any of 11 (and more, shortly) satellites by entering one or two numbers on a keypad provided for that purpose. SatFinder had also become the marketer of choice for Keith Anderson's SCDN system which failed so completely at its first public showing during SPTS Omaha. The collapse of SatFinder as it disappeared into oblivion was more human-frailty related than technical. The firm made excellent money by selling complex systems to upmarket clients and perhaps had MacZura not tried to become a manufacturer of Anderson's innovative electronics package the end would have been different. By January 1982, SatFinder's exclusive hold on keypad entry dish mover remote control systems had been buried under an onslaught of competitors. For example, Spaceage Electronics (New Orleans) offered the 'Space-Vu Locator' for under $200 while KLM was expanding on their receiver and antenna line with the 'Mototrak', and a dozen other firms were trying to cash in on the new technology. SatFinder, essentially less MacZura, went into a 'going out of business' sale mode and on May 18, 1982 SatFinder formally ceased trading.

But it is supposition SatFinder might have survived, for MacZura had a 'habit' which involved use of dangerous-to-human health substances available only from transient street peddlers. His right hand employee, Larry James, related to me how David was 'last seen' hiding in the trunk of his Lincoln Town Car to escape an overblown fear of physical harm at the hands of one of these 'vendors' to whom he owed money; a lot of money. It did not help that MacZura, desperate for a new quantity of the street-powder, was hallucinating at the time.

Drugs were a problem with many of the sudden-wealthy satellite entrepreneurs. Schneringer's SPTS events were a focal point of people gathering who had lots of spending cash in their pockets, youthful bravado to outspend their compatriots, and perhaps far too little self control. Jamie Gowen of ADM Antennas, Randall Odom who went through several start-ups in Arkansas before settling on Odom Antennas, Bobby Kaylor of a multitude of Arkansas based receiver firms and many others treated SPTS as a 'party event' where drugs, lavish selections of booze and an overpowering availability of hired-for-the-night call girls were featured.

At the opposite end of the lifestyle spectrum, folks like Larry James ex-SatFinder and Guy Davis who began life with National Microtech, were bible-thumping straight-laced satellite business people with their minds focused on making big bucks - in a hurry. It was a tossup which 'persuasion' was the most trustworthy.

During 1982 I did a quiet survey of the leading manufacturers who had sprung to life from SPTS 1979 onward; not the Microwave Associate - M-A-Coms or S-As but rather the guys from Arkansas, Kansas, Virginia and elsewhere who had come out of the woodwork when home dishes exploded. I studied twenty guys, talked with each at length and out of 20, only three had graduated from a college or university. More pointedly, 10 did not finish high school with a certificate; fifty percent. One could do a sociology profile of these sudden (and often temporary) 'millionaires' and come to the inevitable conclusion these were true American entrepreneurs who, by being a few months or a year in front of the main stream industrial firms, were cashing in on 'opportunity'. That some of these people were easily indoctrinated into a life of 'wine, women and financial risk taking' was no surprise. Arkansan Randall Odom to me during our interview:

"I started out in this with an outdoor crapper. If I leave it with an outdoor crapper, in between crapper one and crapper two I'm having the time of my life!"

I usually tried to avoid the 'evening parties' staged by Randall and others, out of respect for my family, but on one occasion found myself unable to leave until I had finished a story on a new receiver Randall's technical guru Robert Coleman had on display in the lavish house trailer Randall rented as an 'outdoor party pad' just for the show. By 5PM, a steady line of 'party girls' hired for the night were arriving in twin and triplet sets. By 6PM Randall was handing out 'passes' cleverly numbered (1 to 20). If the holder of the pass could identify the girl who had that number, it was next door to a 'sleeping pad' trailer for an hour or so. Randall routinely rewarded his best customers with 'passes' and they knew that the more product they bought from him at the show, the higher the card number and 'better' the 'quality' of the girl that matched the pass number. Randall kept a few in his pocket for 'special guests'. The party was treated like a treasure hunt - rewarded customers wandered about the party pad clutching their numbered pass searching out the hooker who had a matching number someplace attached to her body. Yes, there was an abundance of groping and 'touchy-feely' involved in this 'game'.

"I have number 18 for you," he said, shoving a card in front of my

nose. I declined, trying to appear gracious.

"It is offensive to turn down a gift," he began. I thought he was kidding until I looked up into his eyes. No such luck. I was still interviewing Robert Coleman at that point, and had just shot perhaps 15 photos of the new Coleman receiver on a table.

"19 is for Robert, 20 is my personal stock."

The message here? I was just down the line from the two partners; it was an honor but not one I wanted. Reluctantly, smiling of course, I accepted #18 and went back to the interview (and the first rate imported Scotch). An hour later stumbling out of the Odom trailer I bumped into Taylor Howard. He had once observed to me, at the San Jose SPTS, "Lib Coleman is a very attractive woman." Of course I never thought for a moment that #18 was Lib Coleman but something inside of me urged #18 into his hand as I bid him 'good night'. Days later I would learn he passed it onto his Chaparral business partner Robert Taggart. Did #18 get used that night? I'm not telling.

Of the twenty I interviewed for a possible (never published) feature in CSD, only one remained in the business by 1987; two years after HBO scrambling hit the industry. Most made it to the end of the big cash period (late 1984) and then as HBO's well managed publicity campaign struck home and home dish sales plummeted, one by one they crashed (only one more letter than cashed) and went broke. Randall Odom was back to 'crapper number two' - an outhouse, possibly with gold fixtures. By 2000, he was a God-fearing bible thumping born again Christian - more fortunate than most 'instant millionaires' of the home dish era who died premature deaths.

1982 was a year of explosive growth. CSD reflected that - 52 pages plus cover in January to 88 pages plus cover in December; of which, 50 were advertising. I could still manage 'paste-up' in slightly more than 9 hours. Many diverse events drove that growth.

First and perhaps foremost, upon reflection, was the launch of RCA's F3R satellite at the end of 1981. Over the last week in December, the new satellite 'turned on' and became the primary cable satellite. Older F1 was the secondary cable satellite and now if a home did not have a 'dish mover' they were only getting 'part of the picture'. F3R replaced a lost-in-space F3 which, in 1979, disappeared while being launched. Just as when cable TV transferred from the original F2 to F1 in 1979, there were the inevitable comparisons when F3R replaced F2. Most of what home dish system sellers reported to CSD was positive, partially because F3R had on board 4 of the 'next generation' 8.5 watt transponders; 59% more powerful than the best of F1 or F2.

Immediately, especially on those four 'lucky' transponders, most areas of the United States (as well as down into the Caribbean and northern South America) noticed a significant increase in signal levels. Two of the fortunate services, ESPN and Chicago's WGN, were assigned to the new 8.5 watt transponders.

What this did for the home satellite industry, at least in central areas of the United States (the notations to follow were not universal), was to reduce the size of satellite dish required for acceptable consumer service; down to 6 feet. Adventurous installers would even begin experimenting with 4 footers. This in turn fuelled speculation that as the new satellites (three more were scheduled for launch during 1982) came on line the home dish industry, which favored having dishes as small as possible, was going to be a primary beneficiary. It all came down to 'signal level delivered to the ground'.

A stronger signal simply meant that borderline antenna systems and at-risk receivers were suddenly producing great pictures. Smaller meant more possible sales (not every back or side yard could be 'landscaped' with a 10 or 12 foot 'monster') and more sales of course suggested greater industry growth. Offshore, having four of the 24 available F3R transponders 'loud and clear' in locations such as Martinique with 12 or 16 or in the worst case 20 foot dishes meant greatly increased sales beyond the non-included 48 states. Of course serving smaller, private home dishes was never the intention of RCA with the launch of F3R but that was the way it turned out.

If we fall backward to the first SPTS in Oklahoma City, the name James K. Vines pops to the foreground. Jim was a pre-SPTS enthusiast living in a suburb of Chicago who had one of the most peculiar approaches to home satellite TV of anyone in the industry. He began in the mid-70s building parabolic dish antennas for terrestrial UHF television reception; he was, in a descriptive term, a 'TV DXer' - an enthusiast who just wanted to watch, or receive if not actually watch, UHF (ultra high frequency range) TV channels from afar - say 200 or even 300 miles. As an avid reader of the Cooper produced CATJ magazine, he had been led through a series of cable-intended articles describing how 'dish' (parabolic) antennas up to 20 feet in diameter could be created using materials available at the local lumber yard for VHF and UHF (terrestrial, not satellite) TV reception. Redwood strips, known for their strength and ability to conform to a 'parabolic bend' when placed under intense physical stress, were the framework for cable TV UHF dish antennas in the 70s. I had pioneered these at my Jackson, Sutter Creek and Angels Camp (California) cable systems in

the mid to late 1960s and wrote extensively about them in various publications as early as 1967.

Vines, in a garage workshop, had built several and substantially refined the mechanics of building a parabolic dish frame from lumber company Redwood (which replaced at far lower cost the standard aluminum of steel framework which Scientific Atlanta, or US Tower used for their first cable-design satellite dishes). Vines was fully employed in a non-technical field, married to a person not of his own race, and possibly found solace and escapism in the 8-10 hours a day he labored with wood and glue and steel cables to perfect what would ultimately become the 'Paraframe' TVRO antenna. A mixed-race marriage sometimes exudes diversions which might best be described as over zealous.

At SPTS in Oklahoma, Vines arrived with one of his wooden frame Paraframe dishes. It went together slowly, too slowly for most attending, but when he had it completed there was a constant line of admiring and positive visitors overwhelmed by its performance. Simply said, it produced the best pictures of any antenna there - even those several-feet larger in physical size. It was the only antenna at the initial Oklahoma show to properly display the Canadian CBC service; "Imagine that - Canadian TV reception 'way down here' in Oklahoma!" was an oft repeated remark of attendees.

And CSD said so, which helped him launch what was perhaps the most unusual run at the satellite TV antenna business in the history of the industry. Most antennas went together and worked, at whatever level of performance, without much opportunity for the installer/creator to 'fine tune' the performance; what came out of the truck were parts that bolted together in one way only. Vines, because of his unique dish mechanics, gave the installer the ability to adjust ('proof') the full reflector surface to within a millimeter of design perfection. In other words, Brand 'S' worked, after a fashion, but how well it worked was beyond the control of the builder (short of acquiring a cutting torch, a mechanical engineer as a consultant, and a stack of replacement parts). For 90% of the installers, 'antennas worked well enough' off the truck to move on to asking for a check in payment. Not for Vines.

Paraframe's had to be spot on - within that one millimeter final adjustment - or the antenna was not ready to even connect a receiver to. This developed for Vines and Paraframe a small but terribly dedicated group of perfectionist installers spread from the Yukon Arctic to the sandy beaches of the Bahamas. If anyone in the first two years of home dish systems could be considered 'professional', it was the cadre

who handled Paraframe. The rest, by-in-large, were "wham-bam-thank you m'am," followed by "Can I have my check now, please?"

Paraframes cost more because they were extremely heavy (if you pile up enough Redwood, it weighs a ton!) which greatly increased just the raw assembly time. People who installed six meter size Paraframes (ET/6.00) were without question the highest paid in the industry. Assembly and 'proofing' of the antenna took days, not hours. And Vines was more than merely a stickler for perfection; every part of the antenna was personally supervised and inspected by him before it left his Monee, Illinois facility. So while others could have taken the time, care and patience to turn out an equal quality product, none did.

His pricing attracted people who bought only factory fresh Ferraris. His customers demanded perfection, which he quite willingly produced. Of course there were not many such customers and most of these would trundle off to Scientific Atlanta or Microdyne for a cable quality dish somehow convinced that by purchasing from a 'listed' company and paying 'top dollar' they were getting the best available. Nothing could have been further from the truth and Vines greatly enjoyed writing in CSD about installations where his 6 meter ET/6.00 went in as a replacement for much larger Scientific Atlanta 10 meter dishes that cost $125,000 and then proceeded to beat them hands down in the performance department at a fraction of the cost. And I enjoyed publishing his reports because he was a skilful writer and any opportunity to stick a sharp object into the side of S-A was certain to bring a smile to my face.

CSD for January 1982 carried one of Jim's many reports. He was at the private estate of Tom Josephson in Nassau, the Bahamas; the buyer being a self-made ex-WW2 airfield contractor who had made tens of millions in heavy construction. Against Jim's better judgement, Paraframe had originally sold only a part of a ET/6.00 to a Bahamian dealer who had decided, quite in error, he could build 'as good a mount for the antenna locally' as Jim's factory original (which the dealer thought would save money). This had been a mistake in judgement and Vines was now there with fellow traveler Bob Christofanelli (a master distributor for Paraframe, also in Illinois) to rectify the mistake. It turned out the Bahamian installer had made many mistakes and Vines and Christofenelli set about to correct them one at a time.

It was to Vines' credit that he was there at all - he had already been paid for the antenna, and the mistakes were because of errors the local installer had made. And to his further credit, when Vines wrote about identifying the mistakes and correcting them, he was extremely gracious

to the local installer never once pointing an accusing finger at him in the written report. Now perhaps that was because the local Bahamian installer and Vines' wife shared a common ancestry and Vines, being more sensitive than most to racial divides, was simply 'not going there'. But I think not - it was Vines' total dedication to perfection that brought him to Nassau to spend several days toiling under a scorching sun so that in the end he could write:

"What I got out of this experience is that low cost TVRO technology is reshaping the world, one 'dish' at a time. And I am pleased to be a part of that change."

Vines was 'King of quality antennas' from 1979 until well into 1982. Then, suddenly and without many noticing, he simply disappeared from view and from CSD pages as a 'pioneer advertiser-supporter'. There was no earth shaking calamity that caused this, nothing more than the very progress which he so willingly characterized as 'change' that he was 'proud to be a part of'. His wooden framework antenna, to which he was dedicated so thoroughly that he would not even consider a metal or fiberglass substitute, simply became too unwieldy in the face of much lighter weight, much less complicated, and certainly far less expensive competitors. Vines would migrate, in a last ditch attempt to keep his product going, from a Chicago suburb to Alberta (Canada) where a new 'partner' would become involved, hoping that lower material cost and less pricey labor might bring back the 'Paraframe legend'. Alas, it was not to be; Vines '15 minutes of fame' was almost over. He would briefly reappear in 1982, again in 1983 this time building his dishes from Calgary.

Bob Behar's Hero Communications was by 1982 offering antennas as large as 24 feet in diameter, all aluminum, for pricing that was lower than Vines' 16 footer. And while assembling one of these 'Hero monsters' was not a single day - one man job by any stretch of the imagination, when all was said and done, they were far more 'installation/installer friendly' for untrained, careless field workers to assemble in places such as the Bahamas. Vines, in the end, proved that you can be too good at what you do, and too non-compromising in the face of competition, to stay in business. He was the very best at what he did when it was no longer dollar-wise to be anything other than "wham-bam-thank you m'am."

The increasingly wide reach of CSD was accurately reflected by the 'Letters' section. I believed letters-to-the-editor were for sharing, and hand selected from the growing pile each month some for publication based upon the information they imparted, not some self-serving

"Gee - you write great stuff!" content. CSD remained the only publication of note in the growing field (although new, would-be, competitors were on the horizon). February 1982 is illustrative. A Nova Scotia reader asked how recent anti-dish Canadian court decisions might long-term affect the growth of TVRO in that country (the answer was - "keep selling equipment - you'll force the Government to change the rules!"). An Oklahoma reader wondered why the latest equipment was so much better than equipment barely six months old (the answer was, "better component parts constantly improve the quality of the equipment available"). A reader at the American Embassy in Mexico City asked whether his employer could install one or more satellite dishes for reception from the American satellites (the answer was "of course!"). Roland F. Bouteca in Thones, France asked how long it would be before the equipment improved enough to allow reception from the American satellites in Europe (the answer - "Only when new satellites reaching directly into Europe begin carrying American programming - the existing American satellites not being capable of 'seeing' Europe from their south of the United States equatorial locations."). A California reader pondered why CATJ Magazine, "which Coop started," had turned against home dish systems and was proposing US Federal legislation to make it a criminal act to own and use a home dish system (the answer was, "cable guys are beginning to feel the encroachment of home dishes into what they consider their private preserve - satellite TV reception."). An Ontario reader asked what it might mean when (or if) satellite TV transmissions "become digital rather than analogue," worried that his antenna and LNA would become obsolete (the answer: "Not so!"). A Minnesota reader asked why the first (and only at the time) program guide for satellite, SatGuide, was now turning down subscriptions from home dish dealers who were, up to that time, recommending SatGuide to their customers who had purchased home dishes (the answer was, "HBO has put pressure on Sat-Guide publisher David Wolford to either be 'strictly for the cable industry' or lose his access to advance HBO guide listing materials.") Wolford's 'cable roots' made him vulnerable to HBO demands, as ludicrous as they were, and this created a new niche for someone else to publish a guide that would include the many programs available from sources other than pay-cable - CBC Canada, for example. The February 1982 issue of CSD announced two competitors for Wolford - Westsat's Satellite Channel Guide, and, Satellite TV Week.

The home dish industry was developing horizontally very rapidly. Equipment remained in tight supply and while the primary market

remained homes located where terrestrial TV broadcast reception was poor, many smaller niche markets were starting to absorb equipment as well. CSD began publishing specific satellite and transponder information in March 1982 to assist viewers in locating such taken-for-granted services as the NBC 'Today Show' or ABC's 'Good Morning America'. As these network 'feeds' were well spread across a half dozen or more satellites, anyone selling 'fixed dishes' that could only point at a single satellite was about to become history. What David MacZura started with his programmable dish motor drive system, and others would finish long after MacZura became a 'basket case', was now part of the daily routine. Out of this transition would rise a young man from Colorado named Charlie Ergen who would outmarket the competition to become the one (and only) gold-plated survivor of satellite's early days.

Rick Schneringer had scheduled the 'next industry gathering' for March 26-28, in Fort Worth, Texas. If Anaheim had not been his most productive show effort, Forth Worth would at least be closer to his Oklahoma home. The Cooper home on Provo, meanwhile, was passing a milestone of some personal importance. I wrote in CSD for March 1982:

"After 18 months of construction, it appears we will be moving into a real home after more than two years of living out of cardboard boxes and wooden crates. (Son) Kevin will no longer have to sleep in a hallway between the radio control room and the shop, (daughter) Tasha will move out of a corner of a TV studio into her very own room. We certainly have not suffered permanent damage by living in a TV station, but each of us has private reasons for anticipating the move into the almost finished house, 75 feet east of the TV station."

Local Provo native contractor Sam Lightbourne had completed the Annex building or TV station facility, after a fashion, and using the lovely ladies from 'The Bight' community continued cracking up native stone to pour a concrete foundation for the house proper. All of this was happening without regard to the fact that we had run out of money and could not afford as 1980 rolled into 1981 the house anyhow. But CSD's rapid growth in subscriptions and advertising had taken care of that temporary cash shortfall and by mid 1981 there was money in that funny Cuban run bank in Miami to at least restart the house. Lightbourne, by now, was coasting into more work than he could handle largely because he had somehow managed to complete the TV station's Annex building. A successful job went a long ways towards convincing other recently arrived ex-pats from the USA and Canada that

his firm was 'OK to deal with'. Susan and I had, in the interim, met and become quite social with an American family who had a son a few years my junior, with building skills. David Ward, his wife Sally, would over the coming years become our partners in a number of island enterprises.

The Wards were in the 'icon class' on Provo as almost nobody else was in 1981. Ray Ward, the father, had built the Third Turtle Inn' for Dickie duPont; Fran Ward, the mother of David, had opened Provo's first 'lumber yard and hardware store' (largely in support of Ray's construction business) and David had grown up on Provo as one of the few in his age group to somehow escape the fate that so many of his compatriots met - drugs.

David's wife Sally was from an old-line New England family, private boarding school educated, and strikingly blond. If there was a social queen of Provo in 1981, it would have been Sally although she chose to downplay this position. Setting aside her beauty and blond hair, the most memorable aspect of David's wife was her mouth. She knew and used more swear words than rap musicians several decades later. I spent many an amusing hour sitting in a corner and counting the number of words she used in a sentence - not that she spoke in sentences very often, more like a machine gun burst - and then back-tracking to sub-count the number which would be classified as 'dirty' or 'swearing'. People who met Sally were always shocked that such a demure, blond headed, picture of New England propriety could speak with such force. I once tried to video interview her (she was in charge of an annual fund raising event for the local medical center) and after six or eight 'takes' gave it up. She could not get through even a two minute interview without putting us off the air. Fortunately it was on tape and while impossible to edit never made actual air.

My favorite Sally story happened several years after 1981 or 2. I was attending a 'socially elite' dinner party with my then-wife Patti (who will be introduced when appropriate) and perhaps five other couples, including David and Sally. And Sally was late. Very late. So late that after drinks, conversation, and endless waiting the hostess elected to seat us at the table and begin serving the promised meal.

Sally finally arrived carrying a small plastic wrapped package of wilted parsley, which she had been asked by the hostess to bring for the roast beef dinner. She entered with her mouth running and deposited the unwanted parsley with a flourish into David's lap, making a point to move the empty chair next to her husband to the opposite end of the table. David sheepishly handed the ageing parsley to the

hostess who tried to spread the dying stalks around what was left of the roast on the serving platter. As Sally's plate was being filled she spoke directly at the hostess.

"No parsley for me. There are two things I never put into my mouth. Parsley is one and," - pausing for effect - "David's cock is the other."

And then she proceeded to tell the gathering that she suspected David had been engaging in extramarital sex with another lady on the island and that David was, "on restrictions for a month or more" until she was convinced, with a written doctor's report from a Florida clinic, that David was carrying no "communicable disease."

As you might suspect, the dinner table never recovered from Sally's outburst and David's 6 foot 4 inch frame shrunk to midget size as he tried to think of something - anything - to say in response. He could not and the party broke up shortly after dessert. Very early.

But back in 1981 David Ward was the Cooper choice for building 'The Main House' while Sally and wife Susan soon entered into a business plan to create - of all things Provo neither needed nor could afford - an Ice Cream Shoppe. This would lead to a new building to be called Tower Plaza which David and I would build and where eventually WIV would move from Grace Bay Beach. But that too is into the future.

Schneringer's Fort Worth show reached a new low in 'positive attitude'. The location was a downtown city complex large enough to stage a national political convention and during the show dates it had been double-booked on a 'shared basis' by a group that created and sold religious books. But Schneringer's real problems began at the previous show in Anaheim, his self-proclaimed 'big screen video' extravaganza. Greed disguised as 'protection for the new industry' was at the core.

SPACE growth had all but stopped. CSD was publishing manufacturer and dealer member lists and they changed only slightly month to month. From May through October everyone in the industry sold and installed every piece of equipment they could get their hands on, and then winter hit with almost no sales activity in the northern climes. Some of this was in response to frozen ground (it becoming more difficult or many thought impossible to dig a suitable hole and pour concrete to mount the antenna in frozen ground), some resulting from a dealer mind set that the business was truly 'seasonal'. But when CSD surveyed dealers in the southern regions where the ground seldom if ever froze, the drop in sales was equally evident. Which said the industry was facing some sort of 'mental block' rather than something physical that slowed down sales.

This uneven selling created problems for manufacturers who had

to remain open 12 months of the year, even if dealers were taking winter vacations. The component parts going into satellite receivers remained 'long lead time', often 90 days or more between the initial order and the delivery of the transistors, capacitors and resistors to the original equipment manufacturer. Hard plans drawn in January backed up with irrevocable purchase orders had to be on file by early February or firms such as Avcom, KLM and Boman would be in a world of hurt when the sales dam once again burst in early May. All of this added to the problems faced by SPACE because creating an 'official presence' in Washington, through attorney Rick Brown, was also a 12 month challenge.

Immediately following the April 1981 show in Washington - the last one which involved me as show organizer - Brown convinced a handful of manufacturers and dealers that his office needed much more money per month to maintain an industry profile. This brought in more money but it was at least $20,000 a month short of what Brown believed was required. And because he had been present in the Cooper family suite when wife Susan counted our personal take and where $58,000 (plus 'change') lay on the bed in spendable cash, his attention was riveted to the possibility that SPACE should be funding its activities by operating the industry trade shows. As long as the Coopers 'owned and ran the shows', we were 'off limits' to SPACE. But when Schneringer took over as the new owner, Brown saw an opportunity.

Anaheim in November 1981; the Schneringer 'SVS' theme show. SPACE was accorded the usual opportunity to appear on and within the scheduled program, and as was the habit it held several meetings of its Board of Directors during the Anaheim gathering. Schneringer provided the meeting room for this series of meetings but did not attend personally. Perhaps he should have been there.

Brown made an eloquent plea seeking board approval for his office to create a trade show managed by SPACE and there in the Schneringer paid-for room they agreed. What followed was an exercise reminiscent of a Buster Keaton-Keystone Cops movie.

SPACE, in a show of lack of wisdom, neglected to go to Schneringer to discuss that they, the trade association, were 'moving in on his business enterprise'. Naturally, something like "SPACE is going into the show business!" swept the Anaheim show floor and this placed Schneringer in an understandably foul mood. And as I was (still, for a while yet) serving on the SPACE Board of Directors, he came to me in a rage. And with excellent reason.

First, when the Coopers sold the Schneringers 'Satellite Television Technology' (which included our thrice-annual show routine) we had drawn a contract which amongst other caveats had me promising for a period of time to not 'appear' at any trade shows which might be considered by Schneringer to be competition. It was a standard 'agreement not to compete' clause. So here I was on the SPACE Board, personally something of a 'draw' for attendees in my own right ('the father of home TVRO'), caught in the middle. Worse yet, SPACE was basically stone-walling Schneringer - from Rick Brown down through the pecking order nobody would even discuss the plan with Schneringer. And the only thing I could advise him was that the show 'dates' would 'probably be in midsummer' and the show location would 'probably be someplace in the Midwest'.

This created massive problems for Schneringer who as one show wrapped up was already set on the next show (date and location) and hard at work negotiating for the second one 'out'. The 'second out' would be in the summer of 1983 and at that point in time, angry and feeling his own industry had turned on him, Schneringer was floating in limbo.

Before the SPACE raid on his property, Schneringer had been considering a return to Omaha (as he had done in August 1982), as well as alternate sites in Cincinnati and Chicago. Out of this mess came nothing good. Backers of Schneringer lined up on one side of the aisle and pragmatic folks backing SPACE on the other. The logic behind SPACE running a show or, heaven forbid, several shows a year was historical and convincing. Trade shows made money and trade associations required money to function. Prestigious groups such as the NCTA (National Cable Television Association) and the NAB (National Association of Broadcasters) routinely collected between 40 and 50% of their entire year's operating budget from their annual or biannual shows. Even my introduction of CATA (the Community Antenna Television Association) to the world of trade shows had continued that 'tradition'. Brown was saying to the SPACE Board, "either agree to individually pay more money per month to fund SPACE through your companies, or, agree to SPACE holding a trade show where we will profit from the undertaking and in that way raise the funds the trade association requires."

What he didn't have to say, because everyone understood the subliminal message, was an addendum:

"Or, I walk away from SPACE and you no longer have a trade association and representation in Washington."

If this rift was not enough to sour the Forth Worth gathering, the combination of one of the worst possible locations for a satellite trade show and Schneringer's total failure to understand why people came to trade shows would be the lemon not so gently squeezed over the conclave.

Schneringer had selected the Tarrant County Convention Center as the location; downtown Fort Worth. The show attracted more than 60 'show antennas' which would be 40 more than the available outdoor space could accommodate. Moreover, the Center was less than a half-mile from a major Bell Telephone microwave site which created tremendous interference for anyone trying to make their satellite antenna system work. In addition to the 60+ antennas jammed into ground space for 20, there were 91 exhibitor firms occupying 117 booth spaces. Here the problem was the reverse of out-of-doors. In the cavernous convention center, an entire division of Russian solders could have practiced war games without interfering with the satellite show.

Schneringer, not the brightest card in the deck (then or ever), compounded his location selection error by dealing off the bottom of the deck to pay the extravagant costs of renting the facility. To sell booth spaces, he 'made deals' with folks who were at best dealers and at worst opportunists; 62 of the 91 exhibitors were offering 'complete TVRO systems' for sale - shorthand for 'whatever you need, I can get for you'. A high percentage of these 'exhibitors' had never appeared at a show previously, and most of them never would again. Then in response to a fear that 'foot traffic would be light' he committed the grand faux pax of all. He hired a group of scantily clad Texas girls to roam the streets of Fort Worth and Dallas handing out 'free show passes' to anyone and everyone who wandered by their sidewalk locations.

People came out by the hundreds, thousands even. Folks who were looking for something to do on an evening jammed into the facility with absolutely no knowledge of what was happening there or why all of this exotic equipment was on display. In the midst of this melee, those who had travelled from Duluth or Miami or San Luis Obispo to attend a 'trade show' found themselves being elbowed away from displays by folks dragging 3 year old screaming kids dripping ice cream cone residue behind baby strollers.

And then to compound this scene, somebody started a price war on equipment on day two of the three day affair. Pricing of equipment for attendees had previously been largely handled with printed sheets

passed from personnel staffing an exhibit booth to a prospective dealer customer after - and that is the key word here - the potential customer had been 'qualified'. Pricing sheets reflected quantity purchasing rules - the more somebody bought of something, the greater the discount in pricing. On day two as the exhibit hall opened, covertly erected huge banner signs apparently created overnight proclaimed new, much lower, prices for a host of equipment. Exhibitors arriving to man their booths were greeted with these twenty foot red-white and blue signs proclaiming for the world to see not only the (previously discreet) equipment pricing but dollar numbers that had dropped 25% from the cautiously distributed printed sheets of day one.

Fort Worth sign makers went into overtime; one brought a complete mobile facility to the front door and exhibitors stood in line to have their own signs made on a rush order basis. Banners erected at 9AM were superseded by new advertising proclaiming even greater price drops by noon, and again by 3PM. There was total confusion and the folks pushing baby strollers were now just as knowledgeable about what a home dish system cost (at wholesale-plus!) as the industry guy from Duluth who had to pour concrete into frozen tundra in March to make a living. By the third and final day, nothing made any sense and even Schneringer's supporters were angry with the way the show had been conducted.

Schneringer-the-showman had one other self-made major problem. After cutting booth space pricing to attract 'newbie' dealers who were offering 'complete TVRO systems', he had reacted to the coming intervention of SPACE into 'his show business' by exchanging 'time on the podium' to manufacturers who were willing to buy exhibit space. The technical sessions, previously a hallmark of the trade shows, turned into a series of self-serving sales talks extolling the claimed virtues of 'brand A' over all other brands. Schneringer had abandoned my carefully crafted system of introducing at least one new STT manual at each trade show, and using that manual as both a 'premium' for registrants and as a 'theme creator' for the show. 'His theme' had become 'sell-sell-sell and where Susan and I had been quite remarkably collecting $100 to $150 per attendee at the early shows and 'throwing in' a couple of new (priced at $40 each) STT manuals for attending, Schneringer was sans manuals and in addition to handing out 'free passes' on the streets of Dallas - Fort Worth was actually allowing people in to attend the full 'technical' (read - sales) sessions for as little as $15 a head for all three days. Schneringer had prostituted the entire industry show concept to a new low.

In defending his changes in the way he ran shows, having lost all connection with training, he would tell the SPACE Board in a revealing moment, "I am no educator." It was unlikely he could even spell educator.

Years later I would stumble across a speech given by the man often attributed with being the 'father of radio', Lee deForest, when in 1944 he took the American broadcasting industry to task for what he saw as an undesirable trend to overt commercialism. In his speech, he beseeched most memorably, "Look what you have done to my baby!"

Upon reflection, that was exactly what I felt in the spring of 1982 as a thousand industry attendees stumbled home from Fort Worth and thousands more pushed their baby strollers back to the Tarrant County Center parking lot. As the Coopers returned to the sanity of Provo I advised Susan, "I think we are going to take a miss on the SPACE show in August."

Nothing makes you forget your problems like dollars pouring in and as April turned to May, the home satellite industry doors burst wide open. Sales rapidly grew to 2,000, then 3,000 and ultimately 4,000 per month suggesting an annual rate in the region of 50,000 by year end. Of course with sales much smaller in say February, months like September were pushing 10,000 in a 30 day period. Everyone was stressed as a result.

Looking back, 1982 was the termination of 'the good old days' of home TVRO; everything past early 1983 was fraught with legal and technical challenges that basically 'took the fun out of home dish system sales' although for many the 'good money' continued to grow.

The public image envelope was pushed ever further through the year and Miami based Bob Behar, who knew and understood the importance of good press better than most, was if nothing else wearing out his passport. About which.

Behar's family had fled Cuba with the coming of Castro and young Bob was an engineering position employee of Miami's pioneer TV station WTVJ when the home industry started. Actually, he was fascinated before it started and attended the last great and grand CATA cable TV trade show in Oklahoma (1978) where he was introduced to the 'home dish rat pack' consisting of myself, Rod Wheeler from the Yukon, Steve Birkill from the UK and the infamous Steve Richey. Behar was well paid by WTVJ but not likely to remain an employee very long - he had more than the usual dose of entrepreneurial spirit. He went from WTVJ and a part time business he called 'AB Electronics' (he was the "B") to Hero Communications which by 1980 had turned itself into

the primary supplier of satellite systems for offshore (out of country) enthusiasts. His list of customers included top-folks in the Colombian Drug Cartel (about which he quipped to me, "It's nice to see some of that street money flowing back into the United States!"), and by 1983 just about every Prince in Saudi Arabia, Fernando Marcos who was at the time the head guy in the Philippines and a long-long list of lesser clients of equally questionable character had been Hero-equipped.

Each time Hero sold and installed a new 'monster antenna system' into a new segment of the world, Behar would sit down and write a publishable report for CSD. And his photographs were always high quality so he was guaranteed publication, even if over a 12 month period it began to look as if CSD was a Bob Behar rooting sheet.

Some of his more memorable (then and now) 1982 reports covered installations he did in Colombia, Cameroon and South Africa, Kuwait, Lebanon and Saudi Arabia. In each location, he was facing heavy scepticism and a host of unknowns. Shipping as 'excess baggage' a 7.5 meter (25 foot) or larger satellite antenna with everything it required amounted to several thousand pounds, large containers and a very special talent for 'talking' it through the airlines involved. Behar's customers always 'wanted it yesterday' which meant normal, safer, more conventional shipping (by boat or air freight) seldom worked out. Just getting a complete system, in ready-to-assemble parts, to Cameroon (an ex-French enclave in east-central Africa) was an exercise in bribing, cajoling, pleading and political influence.

Behar played two cards very well. The first was his Cuban extraction which helped massively as most of the employees of the Miami start-point airlines used were Cuban themselves (Cuban to Cuban was an important connection, at the time). The second was his ability to get our shared-friendly-banker Charles Dascal to intercede when nothing else worked. Dascal's influence was significant and there seemed to be very little he could not accomplish if he put his mind (and some money) to it.

Saudi Arabia was an interesting challenge because Behar was Jewish. The Saudis at that point in time would simply deny entry to someone who even smelled Jewish and if your passport showed an entry into Israel prior to arriving - well, you might just as well stay on the plane. You would not be admitted. Moreover, his passport suggested his Jewish roots. The first Saudi Hero installations were performed by an employee who was not Jewish. But deep inside, Bob Behar wanted to go there on his own, perhaps just to prove he could do so.

Charles Dascal to the rescue. Behar needed a new passport, one

that did not include stop overs in Tel-Aviv and which did not identify him as a person of the Jewish faith. Behar's determination to go wherever 'home dish' technology was being introduced was at the time legendary. During 1982, as reported in CSD, Hero and he pioneered the first and second African home dish systems (Cameroon, Johannesburg [South Africa]), Kuwait and Saudi Arabia, numerous eastern Caribbean plus northern South American countries and the one I enjoyed immensely, Brazil. An especially memorable installation in Lebanon, for a Palestinian owned radio station group, included 'before - after - after once removed' photos. In the first, the concrete block where the dish would be installed. In the second, the dish installed and operating. In the third - what remained of the dish after 'an unknown force' (read Jewish agents) had placed several sticks of dynamite on the dish. Elapsed time from photo one to photo three - 3 days.

1982 was World Cup Soccer's year and nothing inflames South Americans like soccer. Rede Globo, the Brazilian national network which we pioneered from the parking lot of the Bayfront Auditorium in Miami during the first SPTS '80, was scheduled to introduce live soccer coverage of the series. Unfortunately, their satellite service was new and 33 dishes 7.7 meters in size from Scientific Atlanta had been ordered for US$25,000 each, most of these scheduled for very rural areas in Brazil where TV was equally new. Bad luck (or poor planning), for S-A, they could not produce 33 dishes and get them to Brazil for the June 13th launch of World Cup Soccer. To take Rede Globo off the S-A hook, Behar's Hero could supply the missing antennas and Varig Airlines agreed to transport the multi-thousand-pound crates from Miami to the outback Brazilian locations.

The Brazilian telecasters affected had been promising with over-the-air promos 'World Cup Soccer' for months. The TV stations were faced with a riotous situation - not unlike the San Francisco 49er fans who turned Santa Rosa (California) motels into splintered wood back in 1971 when a crucial game was cut off in the last few minutes of play.

A Hero installation engineer in 1982 was more than a wrench jockey. He had that same 'what else is out there?' spirit of Behar; it came with the territory. So it was in Belem, Brazil, south of the equator and thousands of miles removed from the central Kansas 'boresight' of Western Union's new Westar IV satellite that a number of very good quality American signals were noted and reported to an anxious CSD audience. It would get better; Quito (Ecuador) before the year was over. Of course none of this 'off boresight' reception was forecast by any

engineer working for Western Union or the folks at Hughes (they built the satellite). What it did was open up a huge new geographic region for American TV signals, transmitted by North American based satellites. Behar's Hero Communications was truly on the leading edge of a new 'American export' revolution which would in the coming years have a significant impact on communications law in a dozen or more countries; not everyone wanted 'American television' in their country, you see.

Equally amazing was the discovery that Canada's Anik B, providing CBC English and CBC French programming, was capable of being received from Ecuador to Brazil as well. Obviously, the folks responsible at Hughes when designing the satellites had made a fortunate error in their satellite transmission antennas creating signal reception of significant strength in regions of the world where no signal at all should be available. It would get better again in 1983 with the 'discovery' that HBO and other American programming could be received in such Pacific locations as Tahiti and New Zealand! Not with small dishes, mind you, but with Hero building dishes by 1983 to 10 meters in size, and commercial interests excited about importing 'American TV' to very much out-of-the-way locations, the cost of the antenna was secondary to the results it provided. Anyone who installed a monster dish could quickly get their money back by 'sharing' their fortuitous reception with others in the area, whether by cable or transmitter relay.

Behar's most memorable 'excursion' took place late in 1982. It began with a telephone query from an American, Will Bones, who was headquartered in the Philippines. It seemed Bones was buddy-buddy with the President of the Philippines, Fernado Marcos, and on December 2 (1982) the 'Fernado Marcos International Golf Tournament' was scheduled in the suburbs of Manila. Bones, speaking for El Presidente, wanted live satellite television on display in the tournament headquarters, preferably from America. There were several distinct challenges in what he proposed - not the smallest being he was calling 13 days (312 hours) before the event began and Bob Behar with his impressive antennas, equipment and staff was almost exactly half-a-world away. The 'live from America' portion could be dealt with, if clandestinely, because the American 'Armed Forces Radio and Television Network' (AFRTS) was newly transmitting 24 hour television world-wide using relatively low power Intelsat satellites and moreover, the Australian 'Nine Network' (station ATN, Sydney) had installed a 24 hour link from Los Angeles using Intelsat to receive 'live' American

CBS programming. What followed as the initial telephone connection terminated was one of the most impressive displays of human creativity and ingenuity ever mounted by the 'home' TVRO industry.

A Hero six meter antenna and technician, Gary Willhoite who began with me by producing STT video tapes and my WIV-TV materials, left Hero's Hialeah facility within 24 hours, the huge antenna plus receivers and parts miraculously booked (with the direct intervention of Fernando Marcos to the airlines) as 'carry on (hold) baggage' across the USA to the west coast, then to Manila in leaps and bounds. To make the challenge especially interesting, Bones had worked out an intended antenna location at the tournament site but this location was several miles from both the tournament headquarters and 'The Presidential Palace'. It was a matter of concern, ultimately a tenant of the hastily prepared written contract, that both the palace and tournament headquarters have reception from the dish. Obviously, running several miles of coaxial cable was not an acceptable solution with the clock ticking.

As Willhoite and several tons of 'hand carry' were working their way to Manila, Behar went into high gear to arrange the custom design, creation, test and manufacture of a pair of VHF TV transmitters which would, if everything worked, allow the yet to be landed or installed dish to share reception over a wide area. Anyone who has ever considered such a project will know that months - many months - would normally be required to organize and make work such a complex project. Behar was further challenged by the appearance of the American Thanksgiving Holiday period right in the middle of his now under 300 hours and counting - downward.

It, of course, helps when "money is no object - make it work and you will be paid anything you wish!" One of Behar's greatest skills was his ability to focus precisely on a job to be done, and allow nothing to interrupt his field of view until the task was completed. He himself would follow the antenna and Willhoite, hand carrying the last of the equipment - the yet to be created TV transmission gear - the minute it worked. It helped immensely that Behar's entire work force was as dedicated as he to projects which virtually any other firm in the world would have simply said, "No thank you." And as CSD readers read of this odyssey in our February 1983 issue, there were some who perhaps for the first time worked out just why this 'American small dish revolution' was an extremely dangerous tool 'in the wrong hands'.

When Behar arrived in Manila with his own 'hand carry', a regional representative from Intelsat was in the crowd to observe the installa-

tion event. Wandering around the fringes of the crowd, this 'learned individual' continually offered his opinion that the entire 'fiasco' was doomed to failure, "because nobody receives Intelsat signals with less than an 11 meter dish." Behar, of course, knew differently.

Willhoite had the antenna assembled and on the nearly one ton mount (that was one big lot of hand carry baggage!) when Behar arrived, barely 24 hours prior to the 'turn on or die' deadline. A CSD photo illustrated how Willhoite managed to 'lift' the one ton dish from the on-ground construction spot to the top of the 15 foot steel pedestal mount. The clever Filipinos had created a Mahogany walk-up ramp large enough that a squad of people each holding a small segment of the one ton monster could 'walk' the antenna from ground level to the top of the above ground mount. Behar would later observe to CSD readers, "If we turned the Mahogany ramp over and put it into the water, we could probably have floated it back to Miami!" In Behar's kit bags, the VHF TV transmitter plus a backup spare and a second spare for that one complete with a 450 megacycle two-way touch-tone-command remote control to allow President Marcos to actually redirect the satellite dish and change the channel tuning from his palace some distance away (the same system Baby Doc Dubalier had passed on, in Haiti). None of this was 'stock equipment' - all had been designed and built, tested and shoved into Behar's baggage in Miami in something less than a week's time.

The CSD photo said it all. There on the screen, football legend Joe Montana with the CBS sports caption reading, "Joe Montana needs 13 yards to tie Fouts 4 game consecutive 300 Yd streak."

Yes, Behar's firm was paid, handsomely; President Marcos was delighted and agreed to back another American in a new business venture to sell similar systems throughout Asia, and when Behar casually mentioned to El Presidente amidst a shower of congratulations that he should, "get away for a few hours to shop for some souvenirs for my family," a Government helicopter and crew were placed at his disposal. Everyone should go souvenir shopping in a Filipino government helicopter!

1982 and well into 1983 would prove to be a major growth period for determining the 'limits' of satellite reception. The October CSD featured one of those classic, National Geographic-grade photos; an elderly lady of perhaps 80 years sitting on the ground in front of a grass thatched hut in the Highlands of Papua New Guinea holding a battery operated portable television on her lap. On the television screen a picture and directly behind, a 12 foot Luly antenna - the one that

folded up like a giant umbrella for transport purposes. 'TV Missionaries' Lindsay Jorgenson and John Morgan had attended a satellite trade show in 1981 taking home to Goroka (PNG) a complete transportable satellite receiving system. Then they had set out to sell systems to New Guineans. I wrote in CSD:

"Lindsay is akin to those 1800-ish US pioneers who rode horse-back in the American frontier spreading the Gospel. Only Lindsay and John are spreading the electronic message of civilization. New Guinea is largely still in the same primitive state of development which it was 500 years ago. Many natives there have never seen a vehicle, believe airplanes are the work of the devil and the only white skin they have seen is on the medicine man who paints himself with a white, chalky substance for dance rituals. You probably think I exaggerate; I do not. Lindsay told me about going into one native village where he was apparently the first white-man to visit. Through an interpreter he learned that the strange but somehow familiar bone that a native straight out of the bush was chomping on was part of a human arm. Seems the native hunter has collecting his 'reward' for participating in a raiding party on a nearby village the night before. Lindsay declined to accept their dinner invitation."

Numerous photographs illustrated the extensive report which verified that even with lightweight, transportable gear, up to a half dozen TV channels from Indonesia, Manila, Australia, Thailand and Malaysia were viewable in the most remote of PNG locations. In one photo a native man perhaps in his 60s is on hands and knees peering intently at the 7" color picture. He turned to the interpreter with Lindsay and asked the most obvious question of all. "How do they get all of those funny looking, tiny white people into that small box?" Jim Vines was spot on. "One step at a time, home satellite TV is going to reshape the world." CSD reported it all, including the warts, in such detail that our subscription list climbed to a mind boggling 10,000.

But perhaps not so easily, 'at home'. Lawyers were entering the TVRO world, not necessarily as consumers. Microdyne, pioneer manufacturer of commercial receivers, sent letters to all receiver advertisers in CSD advising them of Microdyne patent rights for various important circuits. My friend David Alverez, of Microdyne, with whom I had shared many 'discovery moments' back in the 70s, discussed this with me and I reported to readers:

"Our attorney (for Microdyne) told us we had to put everyone in the industry on notice that we have certain patent rights; that if we fail to do that, either selectively or as a group action, we will in effect give

up those rights. We have to vigorously pursue them all of the time, or they will be lost."

Lawyers for programmers seen on satellite were far less subtle. From 1978 onward ABC's Chicago based Max Robinson had been a show-unto-himself five days a week as he prepared for and then participated in the evening ABC newscast. ABC had moved Max around, from satellite to satellite, after their first experience with his being seen by someone who found his off-the-cuff conversations with the Chicago production staff disturbing. The first time ABC moved him happened this way:

With a shortage of satellite transponders in 1978 ABC was forced to 'share' a cable TV programmer's slot on the bird and it worked because the cable programmer didn't start evening movies until after ABC News was over. However, not every cable system had taken precautions to limit the service going into subscriber homes to the movie content and as CSD reported:

"One day a little old lady from a small town in the panhandle of Texas happened to twist her dial and she came upon Robinson an hour ahead of the time when she was accustomed to seeing Max. She sat down to watch. It took her about ten minutes to figure out 'this Max Robinson' was not the same, dignified, pleasant man she normally watched. It took her another ten more minutes to get her Congressman on the telephone. She was, it turned out, the mother of this Congressman and she was very upset to hear Max Robertson suggesting to a young (white) girl that she was only fit for sleeping with (color other than white) 'pigs' and telling a (fellow black) floor-staff person where certain 'acts' could be procured 'by mentioning my name.' RCA promptly moved Max and crew to another transponder."

By 1982 Max was reformatted, ABC hired a special person to switch away from Max's live in-studio camera view when he was not actually contributing to World News Tonight, and, to shut down the audio as well. It was the end of a memorable era for home dish owners and bars and clubs from coast to coast equipped with satellite dishes mourned his 'passing'.

HBO's view of 'home dish piracy' was sharpening during 1982. First they planted a story in the Wall Street Journal essentially saying "the joy ride is (about) over," promising a new form of signal scrambling "very soon." In fact dish-heads were already locating 'tests' of various new and unresolved 'scrambling techniques' tucked away on obscure transponders from the sky. HBO of course studied CSD carefully, and knew that May-October was the major sales period for the

home dish industry. So starting in May and continuing through October the New York based subsidiary of Time, Inc. cranked out repetitive 'news stories' designed to take the edge off of purchasing a home dish system.

HBO said they had a $5 million budget for the scrambling, and they would gift ($1,500) descramblers to their affiliates as a part of the delivery service. What they were more interested in, however, was convincing their brethren satellite broadcasters to join the effort. If HBO did this alone, while that might 'cleanse their skirts' with the movie suppliers (after scrambling, they could then properly claim no one was 'sneaking in to watch the movie' without paying), it would not end movie viewing at dish homes, there being several other, competitive to HBO, services now available. But what motivated HBO to include competitors in the scrambling scheme was dollars and cents. If Showtime, Warner and others would join them, the cost per cable-headend descrambler would come down; significantly. So by 'spreading' their scrambling amongst competitors and other providers of satellite TV such as CNN and WTBS, HBO hoped to save themselves many millions of dollars in per-descrambler costs.

No satellite trade show occurred without 'spies' from HBO and the balance on hand. They could, in one place in as little as one day, 'scope out the enemy' and return home up-to-date on the status of the growing home dish industry threat. Rapidly growing nation-wide distributor National Microtech, out of Mississippi, gave them a new reason to fear the growing home dish elephant. On May 14 and 15 (1982) NM hired satellite transponder time to broadcast a very professional educational and helpful program aimed at satellite dealers and would-be dealers. Normally this might have gone little noticed but NM's Dave Fedric purchased advertising space in the national TV GUIDE publication to announce the special two-day satellite delivered program. This was something HBO could not ignore. "Now the 'enemy' was using the very same satellite(s) to preach to the unconverted!"

Trade shows. Rick Schneringer capitulated and 'allowed' SPACE to stage their first trade show in Omaha during August 1982. This reduced to two the STTI shows for the year; Schneringer's revenue was cut by 33%. He would reconsider his 'generosity' in 1983. SPACE had a moderate turnout, and a totally unexpected spectacular rush on exhibit booths in the final days before the show. Compared with the STTI Fort Worth Show, there was no contest. Omaha worked, people came from near and far away, and the exhibitors wrote major business. For SPACE itself, it was a tremendous positive which validated Rick Brown's

hypothesis and amplified his demand at the SPACE Board level that 'his' trade association be the "only provider of industry trade shows." Rick Schneringer now had a very serious problem which he would attack by further reducing the cost of attending (as an attendee) and making more 'deals' with exhibitors. But the handwriting was not yet totally clear - the industry would struggle between a 'trade association show' and a private entrepreneur show for at least two more years.

Meanwhile down on Provo, my own 'insider status' with the local government had improved. I bought my way in, quite openly. So much equipment was arriving on the island for 'test and review in CSD' that it was no longer possible for me to properly utilize the growing collection for WIV. The most obvious outlet seemed to be 'those in special need'. Some examples: Local business leader Art Butterfield was constructing a church and to 'support' the church he envisioned a low power FM radio station 'proclaiming the word of God' 24 hours a day. Even in 1982 a number of religious radio services were using satellite to relay from one transmitter location to many more and Butterfield needed the equipment necessary to tap into this circuit. We tested, measured and wrote about a home dish system from Conifer and then promptly donated it to Butterfield's church, a rather large 'contribution' to the 'collection plate' being passed. Several more went to local schools, a church on North Caicos and the British Governor's residence on Grand Turk. Naturally each recipient was suitably 'grateful' for our generosity which went further than merely handing over the equipment; each required transport, creating a concrete base for the antenna, assembly of the system on site and then 'making it work'. WIV paid all of these costs and chalked the expenses up to 'good will'.

One of these systems went to the recently elected Chief Minister Norman Saunders. His family owned the gasoline distributorship business on South Caicos which from time to time was linked in 'island talk' to the drug traffickers who had in the past used South Caicos as a refuelling stop. This particular satellite system was installed at his shore side home on Grand Turk.

With Schneringer and SPACE's Brown taking pop shots at one another in the squabble involving the trade association 'moving in on' Schneringer's annual trade show trio, I suggested in CSD, with tongue in cheek, "perhaps we should hold a non-trade-show retreat on Provo for industry leaders." I was not serious when I proposed this 'distraction' to industry activities but more than 30 readers quickly jumped at the opportunity to write off a 'business trip' to Provo. Every month, throughout 1982, Provo had been visited by satellite equipment

designers, distributors, installers who either wanted to check out this unusual spot on earth or do some serious test work using our more than adequate facility. Several of these folks had purchased property on Provo, including SPACE's elected President Tom Humphries who was at the time leading the Microwave Associates home dish effort, David Barker who designed the image reject mixer which KLM was now manufacturing, Ed Grotsky of Phoenix firm Arunta Engineering and Peter Drake of R.L. Drake. With the Coopers now, finally, living in 'The Main House' our 'Annex' building turned into a home-away-from home for dozens of satellite folks. And when we were displaying the 'no vacancy' sign, as was often the case, or if the visiting group wanted total privacy (and perhaps some 'local action'), they went down to Cal Piper's Island Princess hotel two miles down the beach. All of this new traffic caused pilot Ed Hegner to first grow to a pair of Beechcraft tail draggers and then later in 1982 expanding to a modern Beech Jet-Prop which had the amazing capability of zipping between Fort Lauderdale and the islands in just over two hours. The 'good old days' were disappearing into the sunset, rapidly.

The Provo Retreat attracted around 30 folks who stayed for a week turning the Island Princess into a miniature satellite enclave. Each company sent down new equipment to be trialled, the sand dunes between the IP and the water sprouted several temporary 10 to 12 foot dishes and between walking into waist deep water, bending over to select 'the' lobster which IP would prepare for their dinner, and the fun and games of playing with WIV's TV station, it turned out near perfect. During the gathering I invited Chief Minister Norman Saunders to speak at a dinner and he announced a new government initiative to create an 'offshore tax free zone' to encourage electronic manufacturers to use the Turks & Caicos as a low-labor-cost assembly venue for things like satellite equipment. Norman was quite serious about the plan and it had the blessing of the British as well - sadly, CM Saunders would become embroiled in an ugly example of American intervention in foreign government activities before anything would mature with the plan.

I had been running regular reports, perhaps for my own amusement although I did not think so at the time, about the development of the national WIV TV service in Coop's Satellite Digest from the first issue after Susan, the kids and I 'hit the beach'. Some readers objected to the 'waste of space' such reports consumed, but the majority by a wide margin found them some place between instructive and on occasion wildly entertaining. One appeared in CSD for November (1982) and

as it encapsulates just about everything we had done or misdone on Provo since landing, I share it once again, here.

"A couple of years ago, immediately after the Coopers moved bag, baggage and dishes to the Turks and Caicos Islands, I began a CSD series detailing the trials and tribulations of bringing first-time television to a previously unserved region of the world. Apparently this subject wore thin with many (I hesitate to say most) readers in fairly short order so I retired our living memoirs to a back burner and shut my mouth about making a (TV) system like this play. I think I have been quiet long enough for one stretch, so this month we are revisiting the subject. We have really learned a great deal, and since what we are doing daily is still not being done in very many locations, the subject is important enough to visit every couple of years or so.

"We have made some costly mistakes. In a moment when I let my guard down, at the Anaheim STTI show last November, someone in the audience asked me how much money we had spent bringing first time television to TCI. I whipped out an off the cuff number which had six numbers left of the decimal, and somebody else asked me how in the world I could stand up there and tell people it could be done for $7,500 when it was (now) obvious we had spent far more.

"A fair question. The answer is that somebody, us in this case, has made every mistake that anyone else is likely to make, before you. And had we known prior to starting what we now know, we would have been able to reach our present state of quality operation for about 5% of what we actually did spend.

"This is a funny, little, country. There are no more than 8,000 people in the entire country; a medium sized county seat in Iowa would dwarf us. Way back when, or before there was a recorded history in the Turks and Caicos, these islands were occupied by an obscure Indian tribe that must have been forced here by an ill wind. Some modern historians have recently claimed that Christopher Columbus first spied North America land about ten miles from where I write these words. There is considerable evidence to back this up, other claims for the Bahamas and Hispaniola not withstanding. I do know that many serious students of such things believe the Pinta, one of Chris's three ships, lies in about 40 feet of water 15 miles from me. They have hauled up several canons and planks and ballast from the site and the hauler-uppers have made the Today Show and Time Magazine with their claims.

"Columbus or no Columbus, the Turks and Caicos were a haven for Caribbean pirates through the 17th and 18th centuries. Every now

and again somebody stumbles across a 300 year old coin on our beaches, and local legends abound describing buried pirate treasures. None of this explains how until 1968 or so there were no white folks on our island, and not over 500 non-whites.

"The Turks and Caicos have belonged, or been under the wing of, Jamaica, the Bahamas, and Bermuda in recent centuries; it has never been totally independent. The Bermudan folks did the most for these islands, or perhaps it is better to say 'to' them. They came here in the early and mid 1800s and developed a local 'salt industry'. You did this, or did then, by opening up some levees so that sea water could flow into low lying marsh areas. Then when the marsh areas fill up with sea water, you close the levee and wait for the abundant sunshine to evaporate out the water. That left the salt behind, which people then proceeded to 'rake up' into piles and eventually transport to the world's salt markets. This was a labor intensive industry and the white Bermudan folks found ample local black labor. Which, since no American Indians were black, begs the question of how and when the today's local natives arrived here.

"There are two stories which deserve repeating. One suggests that during the 1700s and 1800s, when slave trading ships were plying the routes between Africa and North America, they followed a regular route up the Caribbean slave expressway which took them right past this set of islands. And at the time, these islands were, largely, empty of anyone. We are told that ship captains knew, as they passed this 'expressway exit', they were finally nearing their destination in America. And this was their last opportunity to 'weed out' the sick, the old and the infirmed. The story is that those who did not measure up were tossed over board as they passed the Turks and Caicos. If the story is true, a few of those abandoned in passage apparently had sufficient strength and will left to somehow swim or get ashore and start all over. The original Indians? Columbus and those who followed his trio of exploratory boats came ashore, rounded them up, and shipped the Indians off to Hispaniola to mine gold, essentially leaving the islands without inhabitants.

"The second story, or theory, tells us that during the American Civil War, a number (not a large number but certainly at least a dozen) southern US planters, aware that their life style was crumbling about them as Atlanta was in flames, packed up their families and belongings and some of their slaves and headed for uncharted waters. They came here, we are told, and tried to re-establish cotton plantations. They should have checked with the US Department of Agriculture before leaving Savannah. Most of these islands receive no more than

30 inches of rainfall per year, and some years the annual take is far lower; Provo's typical ten inches being illustrative. The islands have a coral rock base, which means that natural, humus soil is very scarce. What soil as there is has a high alkaline (salt) content and cotton is not a top notch performer in soil that is as alkaline as ours is.

"There is still considerable wild cotton growing here and there over much of Provo. It apparently has been propagating itself for more than a century, unattended. I doubt their yield came within 10% of what the southern plantation folks experienced in Georgia and privately I suspect that there may have been no more than a handful of such ventures that actually attempted to grow cotton here; some of those folks had to have the common sense, after landing, of leaving - promptly. Still, it does explain how black Africans may have ended up here. A peculiar 1860's strain of spoken American English that persists to this day further validates this theory as do foundation remains of carefully engineered if poorly constructed 'Great Houses.'

"Out of the trade loop, except for salt, the Turks and Caicos were largely ignored by the balance of the world until the 1960s. At this point the US needed a downrange missile and satellite tracking station and one was built on the capitol island of Grand Turk. It is still there, but now it is owned and run by RCA and since low altitude manned slights are passé, the scope of the installation has changed considerably.

"The Mercury Astronaut program brought short lived attention to the islands and coincidentally at the same time the UK was shucking itself of responsibility (and the expense) of overseas posts that did not pay their own way. The T and C was one such identified outpost. Elsewhere in the Caribbean, The Bahamas and Jamaica had declared themselves 'independent,' Bermuda had long prior worked out being self-supporting and this left the Turks and Caicos as a lone outpost of UK interest. The Brits saw absolutely no strategic value here, no local economy developing, and was looking for a graceful way to extricate themselves from under the $10 million or so per year (in US dollars) which it was costing them to administer the place. This drove the UK masters towards creating a form of local self government; 11 locally elected 'ministers' to sit in a one-house legislature. The legislature makes the laws and staffs the bureaucracy. The UK still provides final-say leadership including a London appointed Governor with the power to cancel anything the legislature might do in a foolish moment. Great Britain also provides the head of the police force, an attorney general, an administrative 'business manager' and a roving system of courts that visits TCI from time to time. What the UK did not do in the 60s,

or anytime since, is to create a method by which the natives here could support themselves (save those who could finagle a job with the Government).

"The island of Providenciales (Provo), where the Coopers live, is the western most populated island. We are some 70 miles west of Grand Turk, the capitol, and approximately 650 miles E/SE (a 120 degree heading by air) from Miami. Provo in the 1960s was to the Turks and Caicos what Alaska was in 1900 to the USA; there, not forgotten, but seldom visited or tended to. This created a vacuum which two types of entrepreneurs slowly moved in to fill.

"The first white entrepreneurial guys came ashore with a converted World War Two landing craft. They pulled onto a white sandy beach a couple of miles from where WIV now sits, and drove ashore in a 1968 version of the rather large D8 Caterpillar onto the sand. Waving bottles of rum and trinkets for the natives, this first-ever motor driven land vehicle cut inland from the beach and headed for a low, semi-flat area to carve out a makeshift landing strip. Within a few weeks the devil-may-care rickety aircraft landed, from the Bahamas, importing the first canned goods, battery operated radios, hand tools and liquor the natives had ever seen. Life would never be quite the same again. And that was but 14 years ago.

"These same first-guys had managed to talk the government into swapping government owned land for the construction of infrastructure here. That means government gave up 'Crown Land' in exchange for this group building roads, putting in a power plant, building docks and otherwise creating the basic pieces of the civilization puzzle. To accomplish this, they hired local labor with US currency money and this immediately changed the way the natives of Provo approached life. Up to this point, they fished and had gardens and took to the open sea to trade goods with Haiti and the Dominican Republic. Few had ever attended school (there were no government schools on Provo at the time although Grand Turk had two) and most young men who reached 20 or so left Providenciales for the Bahamas or the States to find employment.

"Having acquired large tracts of very desirable land for their services, the American landing party then proceeded to do two things. First they opened a store so the local natives had a place to spend the money they were being paid. That is called 'working both sides of the street'. You pay a man $1.00 an hour to shovel coral sand and rock, and then you build a store to sell him canned milk and corn for $2 per can. They guy works so long and hard for his dollar per hour that he no

longer has the time to fish or garden and thus he becomes a modern day slave of a slightly different sort from his ancestors.

"While the first-here were engaging in this activity, their 'agents' were bouncing about the US mainland selling or trying to sell their newly created beach front and hillside properties 'in paradise'. The prices on Provo were far lower than Florida, even below those in the Bahamas, but they should have been since it was almost impossible to travel here after you bought your property from some traveling salesman. Over time a couple of dozen American and Canadians did buy property and actually build homes here. Those homes were so dramatically different than the local native homes that it quickly became apparent to the natives that canned corn and canned milk was not the best thing that might one day happen to them.

"So much for the first group to move in here. The second group made the first group look like pikers. Because there was virtually no way to get here on a routine or scheduled basis, and, because the islands were strategically placed for 'exchanging goods' before a final three or four hour dash to South Florida, the drug folks discovered Provo and the neighboring islands. And they brought an entirely new culture here. They would leave Colombia loaded with tons of Marijuana or a few hundred pounds of cocaine or who knows what and show up on one of our dirt strips around dusk. Here they would meet-up with several smaller planes, and barter for fresh fuel. Their cargoes would be split up into smaller final-leg shipments, and off the smaller planes would scoot barely skimming over the wave tops heading for unmarked and unmanned dirt strips in rural Florida. There was, in the early 70s, an 'army' of such operators, thick like mosquitoes on some nights. To get fuel for their planes, they first simply pulled up to the airport pump and said, 'fill'er up.' The British security force, not to be confused with someone carrying a gun or even a two-way radio, eventually got word of this activity and a game of cat (the only native policeman assigned to the task) and mouse (the druggie guys) developed. The British could not be bribed but the natives could. And this is not to fault the natives; they didn't have any reason to even understand what the stuff being transported was, and they certainly had no concept of what using it would do to people. What they did know was that for a few hours work, hiding from the constable and pushing some 50 gallon fuel drums around in the bush, a guy with brown skin and a funny accent would hand them as much as $5,000 in crisp US bills. And that would buy a huge quantity of canned milk and corn.

"It took about five years for this to finally play itself out and today

(1982) with the co-operation and support of the US Drug Enforcement Agency, we have fewer drug problems than most US towns including county seats in Iowa. Yes, every now and again some amateur drug pusher lands and pulls up to a pump asking to be filled up. And when they find even a twig of the stuff, the plane is confiscated and the people on board hauled up to jail in Grand Turk. The government as recently as 1979, the year we arrived, was confiscating up to a dozen planes each year that way, and then selling the planes at auction. Our favorite air charter pilot, Ed Hegner, bought two such planes at auction and still uses them for flights to the states and around this part of the Caribbean.

"So by the time we moved here, the narcotics activity was either very recent history or subject to only very occasional, stupid really, attempts to get around the now alert authorities. The Coopers arrived in the 'third wave'. These are people who have come here to open restaurants and dry cleaning shops (a surprisingly lucrative business) and hardware stores and photo shops.

"In the fourteen years since the first guys hauled themselves on shore with a D8 and began cutting a road through the brush and sand, until now, the entire island has changed dramatically. People who had never heard a radio, read a newspaper, never wore store bought clothing or drank canned milk now shop in super markets, drive fancy cars, send their children to college and watch jets land at Providenciales' brand new 8,500 foot paved runway. That is a lot of change to ask people to adopt in 14 years. And as you might suspect, since this is less than a generation in time, old habits are not completely gone.

"When we introduced television in the fall of 1980, everybody proclaimed their 'love' for us. We got the first TV channel operational while we were living in a temporary rented beach home, using an ADM 11 foot dish mounted on a chunk of plywood, to bring down to earth a few hours per day of Westar 1 and 3 news and sports. Television was the first glimpse of the outside world that the natives ever saw. And they saw, for the first time, how the 'outside' world worked, and played and slept. I think the sleeping may have been the most 'educational'.

"I decided very early that I was not going to do anything to contribute to their shaky perception of moral values. I figured with the recent history of D8s plowing ashore, $2 canned corn and $5,000 drums of aviation fuel, they didn't need to watch a string of Bruce Lee movies from which they might assume the outside world went around chopping each other up in little pieces. So we carefully pre-selected TV programming, trying to mix a certain amount of culture and educa-

tion with entertainment. What I didn't properly understand at the time was that local moral and family values were already deeply seated.

"Violence is a no-no here. Yes, people get angry and yes they even hit one another on (rare) occasion. But the last murder on Provo was back around 1870, if you overlook the rumored slaughter of some drug guys (by some other drug guys) back in '72 or so. They never found the bodies so it remains a rumor, for now.

"Nobody has guns here except for a few strange-breed-American Ex-pats (ex-patriots) and a tiny handful of locals who fondly remember $5,000 a drum fuel deliveries. Moreover, large knives and other weapons are simply not carried nor owned by locals. The last armed robbery was never (not in recorded history) and the last rape, at least reported, was also .... never. If the natives can be faulted for any weakness, it is their passive nature and what you and I might consider an 'unusual attitude' towards sex. You understand that 'unusual' is a term used to describe behavior which you may not yourself engage in, or accept as your 'norm'.

"Natives are extremely religious, as a body, if not individually. Local churches, mostly some derivative of Bible thumping, loud singing Baptists, are well attended. Strangely, perhaps, this goes back a hundred years or more suggesting that at some point in the dim past missionaries had at least visited Provo since Africans were certainly not Baptists by tradition. Sunday is a legal tradition; it is local law you cannot enter into a binding contract on a Sunday. A contract to buy a piece of land, from the guys with the D8, signed and dated on a Sunday, can be held invalid, for example.

"If you don't enter into a business deal on a Sunday, that does not preclude sex on Sunday. Or Monday or Tuesday ... etc. Now before you get the idea that walking the roads of Provo is akin to visiting a replay of the back hill side of Woodstock, let me state that I lived here for more than a year before it was pointed out to me that creating children was not considered a function of marriage. One of the neatest native guys I know has the words 'Island Bull' inscribed on his pickup truck. He has 14, I believe, children by 12 young ladies, and he supports each of them. He is not married, never has been, and possibly never will be. What the natives were doing here before the D8 landed, and what they have continued to do since then, is what some might term 'selective breeding'. This particular chap is tall, strong, bright and capable. He is also very good looking; all local virtues.

"I believe Susan tumbled to the local extra-circular activity far before I did. Perhaps my studious nature kept me from seeing the

obvious in this case. Susan, I am sure, didn't want me exposed to this, fearful that some dormant male hormone in me might get into a tug of war with the particular moral values which my mother and family instilled into me. But I did finally figure out what was going on, out of sight to be sure, and I have become a semi-serious student (as in scholar) of the local phenomenon. When you are of a scientist mind, and you live in a test tube, the least you can do is observe what is percolating around you.

"The average tourist misses this extracurricular activity. In fact, the natives for the most part don't mix their own pleasures with the visitors. I'm sure that when Ed Grotsky from Arunta was here for a whole week, he never once saw or heard anything that made him wonder about what the natives do in their spare time. But others who come here looking for 'action' certainly can find it. If not from natives, from the non-natives who populate the island. One of my favorite stories, and it is no story, involves a young lady who came down here about March or so last year. She came for a weekend and is still here. Her family lives in Miami, and she wants to open a business on Provo; a dress shop, I believe. The reason she has stayed so long is that she is relatively plain looking but down here, with the frequent turn over of tourists, and her single status (well, at least she represents herself to be single, here!) - she is 'busy.' And boastful. Something like 35 men in the first week. Or was it the first two weeks? I lose track.

"I could go on but I think I'll save the good, descriptive stuff for a book. Someday. I've made my point. People don't get murdered or stabbed here. Or raped. They don't have to get raped.

"So here the Coopers were hand selecting television programs, oblivious to what the moral codes really are, and carefully staying away from anything with violence or showing more than the top portion of the female breast. And when somebody asked me, 'why do all of the movies stop showing what people are doing while they still have their clothing on?', typically I laughed and figured I was getting my leg pulled. As often as not, the person asking this question was a Pastor or Deacon at a local church. Little did I understand ...

"We began with a 4 hour television day. A few old sitcoms, a movie, and a satellite fed newscast. Like I said, everyone loved us. Then when we finally got out of the rented beach house and into the first of our own buildings, 'the Annex', we expanded first to 12 hours per day and then 24. All of this time we were not charging for service nor were we accepting advertising (which of course explains 'why' everyone loved us!). This situation dragged on for just about one year. Susan didn't like

the fact that we were providing a free service, and neither did I. But we had so much going on that transitioning WIV into an income mode just never reached the top of the 'things-to-do-today' list. I kept telling her we were providing time for people to adjust to the newness of TV and work out how they were going to get their own TV set. With canned corn still $2 each, saving for a TV set was a low priority.

"In October of 1981 we began accepting advertising. We did a decent campaign to get local businesses to support us and worked out the length of the broadcast day as a function of advertising sold. The result was so much support equalled a four hour TV day, more equaled 8 hours and so on. On September 30 we were 24 hours a day without advertising; on October 1 we slid back to 18, eliminating 12 midnight to 6AM.

"I learned several painful lessons here. When we ran 24 hours a day, Kevin or I would 'drop into' the control room every now and again and when we felt the urge, 'change' the satellite service feed from WTBS to WGN or something else so the viewers would not become bored with a steady diet from a single source. When we went to sponsored time blocks (such as from 7AM to 9AM, or, movies to noon) everything about our lives went from nice to awful. We had done it to ourselves.

"A company or sponsor bought a block of time and we opened that block, such as 3PM to 6PM, with an on-screen and usually companion audio credit to the sponsor. Then we'd leave that block with a similar on-screen plus audio credit and roll the next announcement for the next block's sponsor.

"This all sounds pretty simple. But when you are doing this 18 hours each day, seven days a week, having to be in the control room at certain, specified times every day can place a real crimp on your lifestyle. I quickly discovered that scheduling a break at 3PM ended my optional afternoon naps (something one does in 'the tropics') and made it impossible for Susan and I to head off on a beach trip. Getting up at 5:55AM to make a 5:59 AM sign on, and a 6AM block start, was also not much fun for someone who works late, not so speak of the 12 midnight sign-off. But we did this four months before it was a unanimous family vote there must be an easier way to 'earn' $50 a day!

"The answer was to scramble our service. Or so I thought. Now, there are scrambling systems and there are scrambling systems. Ours had to be foolproof and hardy to function in a harsh environment. For two years I had tested and discarded a dozen candidate systems - mostly because the home-style descramblers were extremely unreliable with our uncertain electricity supply. On January 1 (1982) we elected to

return to a 24 hour day but within that 24 hours, operate without scrambling four hours each day - placing all of the day's commercials within that four hours. We manage to squeeze in up to 18 commercials a day in this time frame, creating the text with my portable typewriter and using my best Howard Cossell or David Brinkley announcing voice. About half of our commercials are a spoof on the business paying the bill; it fits within the Island's unusual sense of humor and their grasp of morals. For example, a local garage ran a lady's day special on Wednesdays. Lube jobs were free with oil and filter changes. The commercials begin by stating that the two ('strong, virile') young men running the garage spent far too much of their time 'on their backs under 57 Chryslers' and they have developed 'posture problems with a certain part of their anatomy' as a result of this strange position. Then one of the commercials continued:

"Vaseline is a lubricant. A can of Three in One is a lubricant. And on Wednesday, any single, or unattended lady who brings her car, truck, three wheeler or front end loader into Provo Auto Supply will get a free lube job .... while Marshall and Gil change her filter.

"Our commercials became very popular after we worked out what the local instincts are. They would also get our telecasting license lifted in the states if we ran them there. Oh yes, the first day we ran the preceding commercial, there was a long line in front of Provo Auto Supply at 8AM. Not a single vehicle had more than one person in it, and all drivers were female. An entire new meaning to stud 'service'.

"Scrambling was tested using normal TV receivers. Here I made a grievous error by neglecting to test it on black and white TV sets made in Korea and selling for $69.95 at Miami and Fort Lauderdale drug stores. Much to my after-the-fact discovery regret, these sets totally ignored the scrambling. It was merely a faint, very mildly distracting, set of lines hidden behind the perfectly viewable picture and listenable sound. We had promoted that 'If you want 24 hour television you must sign up for our pay TV scrambled service' which included our providing a descrambler for the receiver. Silly us. Out of perhaps 300 TV sets on Provo, we had just under 100 who signed up and paid the required year-in-advance. The other 200 put up with the scrambling interference or when word got around promptly sent to Miami for a Korean TV set. A disaster of course. Those who paid the annual fee were understandably angry they had paid for a year's service and their neighbor with a cheap Korean TV had not and both got viewable pictures. Something had to be done.

"With the once-annual renewable date staring us in the face, it was

obvious very few would renew. Plan B. Take the pay service off of a regular TV channel (4 in our case) and move it to a new, 'secret' channel which no known TV set could tune-in. And then provide a special set-top box which would tune-in the new channel and 'convert' it to a channel their TV could tune-in. The natives were restless and we needed to do something rather spectacular to reaffirm their faith in our own ability to separate the paying viewers from those who by inclination would rather spend $69.95 for a Korean scrambler-busting TV set than pay WIV for a year's service.

"It was a delicate line - a promise to government to provide TV to every home, without regard to their ability to pay, and to provide 'more TV' to those homes who could afford to spend money beyond the $69.95 drug store TV set. Remember - there is no local radio (something WIV will shortly correct), no newspapers; WIV's service is the only available method of disseminating local announcements (public service such as church schedules or advertising such as having your car lubed).

"We began testing a special channel in August (1982). Because it uses a UHF frequency which does not correlate to any UHF TV channel anyplace in the world (that being our choice and our method of disguising 'where' it was transmitting as a means of some security against watching it without our set-top 'decoder' or 'converter box'), I began referring to it as 'Channel X'. This was another in my series of mistakes.

"Channel 'X'. The channel designation 'suggests' to those who have that kind of mind that some (or all) of the programming would have 'seX' in it. Are not movies with excessive seX rated 'X'? Initially, I was very amused by the reaction of the local population who took the designation ('X') and ran with it at every verbal opportunity. Soon 'Channel X' was not only bigger than life, in expectation, but well beyond what even a liberal society would have possibly allowed on the air. Before we were even testing, the local legislature called a special session to debate the perception of what we might be doing! To short circuit the growing misconception, I rushed Channel 'X' testing, and placed two TV sets in public places posting signs announcing: 'This is the Channel X service to be available soon.' Everything inside of me said, 'When they see the real programming, this nonsense about X or triple rated adult service will die a natural death'. Once again I had over (or under - your choice) estimated the mental processes of an island populated by people who never saw TV (watched a movie, etc.) until I arrived in 1980.

"After the two demonstration sets had been in service for a week, it was obvious I had finally hit the right 'nerve'. I was amazed how little it took to do this. Would-be subscribers began crawling out from under rocks all over the island. To program Channel X, I tapped into a set of satellite programs totally ignored to this point; Soap Operas!

"Standard American soap operas attracted crowds so large into the two test public locations that the proprietors began insisting people buy something if they wanted inside to view the TV. Their businesses virtually shut down from 12 noon to 4PM, much to their dismay, as men and women alike became 'soapies'.

"Let me quote you some dialogue I jotted down while standing on the perimeter of a crowd of 30 or so natives straining to see and listen to an ABC soap opera running from noon to 1PM today.

"Actor he: 'I am moving out.'

"Crowd watching: 'That's telling her, the dirty ... And take your dirty underwear with you.' 'He can't do that, she loves him ...'

"Actor She: 'You are leaving me for Marian? I knew you were sleeping with her!'

"Crowd watching: 'He's no fool .... Marian is a better _____ than she is!' 'He should have left last week; Pauline gave him the _____.' And take your underwear with you!!!'

"Like I said, it took me a while to figure out where the sensitive zones were down here, but I believe I finally have a handle on it. Anytime you can pack 30 people into a small coffee shop that is barely ten by twelve feet for an hour, and they stand there yelling at a television set for 58 minutes, you have identified some basic instinct.

"Naturally, until now we had never shown 'soaps' on WIV. This was a lucky move on my part. Not being conscious of (1) what they were doing on soaps these days, and, (2) the intensive following soaps have in some quarters, I never anticipated what a strong drawing card I had tucked away on an almost never tuned-to transponder. And as I also have related, before I got into the technical parameters of bringing off-satellite television to a new region of the world, I wanted to deal first with the emotional impact of television. Once I fully understood the motivations of the natives, it all became crystal clear.

"I think Channel X will fly. Much of the value in the service is in the word of mouth advertising we are getting. People perceive it to be something that it is of course not. What I seem to have done here is to package hours of 'suggestive television' onto a single channel and then gave it a name which quite by accident starts people's imagination running. Since we have now established what the local national

sport really is, it was merely a matter of marketing the product after that.

"WIV? Well, I am stuck with providing a national 'clean air' service. I think by the time 13 year old Kevin is 23, 33 or perhaps 43, it might break even financially as an advertiser supported service. He's a great kid and I don't wish to leave him with an albatross around his neck, so I will keep plugging away at making it less work to keep on the air, of better technical quality, and more and more representative of the 'surface needs' of this island and country. But hidden away on a discreet, secret 'microwave frequency', we'll keep on cranking out those great lines of soap dialogue, 24 hours a day.

"And take your underwear with you!"

In retrospect. Channel 'X' was indeed a financial success, for awhile. Then we added 'Channel Y' and finally 'Channel Z' as the natives and visitors and hotels demanded more and more selection of programming from their television sets. It took a couple of years, but eventually a technician for Cable and Wireless discovered where our 'discreet microwave channels' were broadcasting and peppered our market with bargain priced pirate decoders, thereby circumventing our subscription fees. But by then we had begun stringing coaxial cables around Provo for the country's first (20 channel no less) cable TV service. Alas, once again, we are advanced well ahead of the current time line.

There was one positive, or almost positive, outcome from my CSD report describing 'Channel X' and our 'microwave' transmission system (which was still functioning in the islands during a 2002 visit there). The creator of the transmission equipment was an amateur radio supplier operating as P.C. Electronics (Arcadia, California). Owner Tom O'Hara had reluctantly agreed to modifying some of his firm's amateur TV transmitters (in the 430 megahertz band) for my conceptualized 'special island needs'. Our CSD reports sparked TVRO enthusiast Kenny Schaffer in New York City to meet with some friends of his who were involved at a high level for ABC television's Nightline program. Kenny was aware that a Mount Everest expedition was considering creating a live television link from the Everest site(s) back to New York for American television. He was also aware that although the network had some of the best technical minds in the world, they had not yet solved the backpack 'link' challenge - how do you stand on top of Mount Everest with a battery operated TV transmitter and camera and talk live to Ted Koppel in ABC NYC? Kenny read our CSD report and quickly worked out how the same equipment I was using on Provo could be repackaged for Everest and ABC. What he got for his mental inspiration was an ABC funded trip to Nepal after working for weeks

with O'Hara to simplify and repackage the equipment so that reasonably competent Sherpas could accompany the expedition climbers providing live TV coverage to New York. Amateur or ham gear was throughout the effort - the P.C. Electronics modified ham radio TV transmitter, a backpacked 6 element KLM (the satellite receiver manufacturer) transmitting antenna, ham radio hand-held transceivers (very similar to those Colombian drug runners were using in their dash for Florida). In a test from 23,000 feet above sea level the system produced very strong high quality color images and sound at the ABC equipped Everest View Hotel, 14 miles mostly 'downhill'. As the climb laboriously proceeded up the slopes, four nights in a row Koppel chatted with the climbers. Came the real test and human error intervened. A careless person, identity unknown, after running the tests from an altitude of 23,000 feet, neglected to turn off the transmitting equipment and by morning the battery they depended upon to operate the TV gear was flat! And so ended, much to the embarrassment of ABC NY, a much promoted 'first' - "live television from the top of Mount Everest."

Back stateside, 1982 was a year of trial balloons and massive losses for some large name entrants into the cable programming world. And what affected cable was also having an impact on TVRO because at this point in time home dishes were, as HBO loved to repeat, 'stealing cable programs for private use'. CBS Cable was one of those that hit the airwaves with great press coverage. It was an artsy-fartsy channel, some called it highbrow, and it didn't play with cable or home dishes very well, nor very long. CBS's own private nemesis, RCA-NBC, produced another flop and they had as a partner in 'The Entertainment Channel' no less than the Rockefeller family. Both channels suffered by being on 'the wrong bird'. RCA's new F4 satellite was powerful, or so they said, but unfortunately for any programmer using it, virtually unusable by being in 'the left field bleachers'. RCA had rushed F4/Satcom IV to orbit, and in doing so accepted a position in orbit which was so far physically removed from their F3R satellite that cable operators were simply not enticed to spend the cash for a new, extra dish just to add to their systems channels which nobody expected would endure anyhow. It is something of a puzzlement how both RCA-Rockefeller and CBS could be deceived by the 'promise' that this satellite would become 'cable's second bird'; it was simply not going to happen, in 1982 nor 1983. Without significant cable carriage of their services, neither channel would long endure. In fact, home dish systems equipped with motor driven dishes which made them capable of tuning in the Satcom IV channels probably created more viewers for both services than all of

the cable systems combined!

Both channels squandered several million investment dollars before pulling the plug or folding into obscure second rate offerings. And it was not only in the programming area where money was being tossed willy-nilly at the 'great bird in the sky'.

Amplica. In a $60 million swap of stock, Comstar, the US owner of more than 25% of the international satellite consortium Intelsat, had assumed control of a relatively small California manufacturer of LNAs and specialised microwave parts; Amplica. One of the first things Comstar did (June 1982) was to rush into production a line of Amplica 'home satellite receiver systems'. It made about as much business sense as Ford Motor Company taking over control of Lawnboy to produce go-karts. The distinction, as it existed at the time, between the 'professionals' of the satellite world and the 'amateurs' who were cavorting in the home dish industry, was becoming more and more blurred monthly.

Other firms, not quite with the reputation of Comsat/Intelsat, but well known for their electronic design and business skills, also jumped into home satellite during the year. Lowrance Electronics, a Tulsa (Oklahoma) firm, which had just about cornered the boating electronics world with gadgets that found fish and communicated to shore and beyond, became the first four-color advertiser in CSD in May. This promptly drove virtually every other serious participant in the field to do likewise, contributing mightily to the Cooper's revenue stream for the magazine before 1982 rolled to its inevitable conclusion.

There were serious rumblings that 'at least one major Japanese manufacturer was preparing to enter the home system industry' (as indeed would happen in 1983) but the major surprise at year end was the arrival of a Swedish firm, Luxor, with a very credible first effort home dish receiver promoted by a new personality in satellite TV, Jim Rothbarth. The name of the success game was rapidly turning into the ability to produce in volume; thousands per month not tens per week. Luxor initially could only produce in 'tens' but as a 60 year old well established European supplier of electronic products as diverse as the consumer marketplace, they would during 1983 reach out and grab 10% of the marketplace. What held the industry together through 1982 was rapid growth (by December the number of home systems being installed each month was topping 10,000) which kept equipment in short supply and prices up; money talked loudly and covered the din of lower volume squabbles. But not for long.

SPACE's Omaha show in August was a mixed bag. The show was

rated successful, but the comparison was to a pair of STTI shows that preceded; Anaheim and Forth Worth. Both had been marred by poor Schneringer decisions. SPACE's Rick Brown believed he saw where the industry was headed and tried to redesign the SPACE board to reflect these new directions. He brought to Omaha a plan for a trio of boards, one each for dealers, manufacturers and SMATV system operators. There were two weaknesses here. The first was he totally ignored what was perhaps the most powerful sub-group in the industry, and the fastest growing; distributors. It was the distributor who purchased component units by the hundreds at a time, making it possible for OEMs (original equipment manufacturers) to schedule throughout the year their own part supplies and cash flow. The second was his perception of the importance of the SMATV or Satellite Master Antenna Television system owner-operator.

In Brown's mind, he was looking for areas within TVRO which were most likely to attract lightening bolts from HBO and their fellow travellers. SMATV was a lightening rod without a ground wire in 1982.

Cable television ruled the programmers because it was cable that paid the programmer's bills. And cable saw in SMATV an end-run around cable franchising. SMATV went to development communities inside 'privacy gates' and multi-story apartment and condominium complexes and 'pitched' satellite TV distribution systems 'without cable'. It worked like this:

Cable was just starting to wire up the major American cities. If you were in West Palm Beach and operated a 300 unit condominium project, your tenants wanted cable's services including HBO. But cable was at the time 'down the road a piece' and might not reach your development for another year - or more. So along came a guy with a sales pitch that promised you 'instant delivery of HBO-plus' if you agreed to let him wire up your development. Moreover, the SMATV operator would as often as not lay on the table 10 to 25% 'ownership' in the (SMATV) cable distribution system if you agreed to grant a ten or twenty year 'exclusive franchise' to him to be the only 'premium TV programming operator' in the development.

Such contracts were 'private', between the SMATV firm and the developer. They were an end run around the FCC's licensing authority and totally avoided any legal (franchising) agreement with the city or county in which the development was located. It was all in a 'very grey area' of law and tradition. And each agreement would at a later date be judged on its own language and merits to determine whether it was in fact even legal.

SMATV firms were raising money nation-wide on a 'junk bond' basis, and moreover there was one gap large enough to drive a Sherman tank through which made everything they were doing totally vulnerable to later lawsuits. They were installing satellite antennas and helping themselves to HBO and other services without bothering to have an agreement to do so. They were pirates; big time pirates.

Cable saw several deep shades of red here. Not only were the SMATV guys cherry picking (taking over one development at a time) prime potential future cable customer areas, they were doing it with cable's own programming! Rick Brown, a cagey and anxious-to-be-rich Washington attorney, saw several million dollars in private lawsuits building here. What he wanted, and perhaps subversively obtained from the SPACE Board, was permission to bring SMATV operators not only into SPACE but onto the Board of Directors. Brown was hedging his future income bet; if the private home dish folks could not pony up the growing law fees his firm demanded for being represented in Washington, the SMATV crowd with junk bond money filling bank vaults was a pigeon to be tapped.

His logic was sound, even if the SPACE Board made up largely of home dish folks could not understand what the 'real' game was. Brown left the Omaha show with less than everything he came asking for, but two seats on the Board for SMATV intact.

Cable was inflamed by the openness and audacity of the SMATV brethren. A smattering of lawsuits were filed but none had the real problem clearly in view. In some states, 'theft of service' statutes might - HBO hoped - stop this activity. Unfortunately for HBO, they were loudly talking from both sides of their corporate gullet in this period. First they said in such prestigious places as The Wall Street Journal, "We are about to scramble," and then in court they tried to play the part of a wounded American Eagle. Most judges threw the cases out after the SMATV defense attorney entered into the record the Wall Street Journal article. In most, the fact that HBO was transmitting 'in the clear' their movies and specials was a huge negative which HBO faced each time it went into a courtroom. If HBO was, indeed, 'close to scrambling' their service in 1982 as they claimed in WSJ, there could be little question they would have done so to put a stop to SMATV 'theft'. But alas, their scrambling efforts were (in truth) very early days and it would be three more years before any of this matured to the point where HBO would - with the throw of a 'scrambling switch' - regain control of their marketplace. As 1982 ended, Playboy Channel launched - and like HBO it was 'in the clear' and available for any

motel or condominium that wanted to distribute it internally to rooms and units. The lawsuits were percolating.

The SMATV crowd was a strange coalescence of malcontents, thought I. A few were ex-cable TV operators who had sold out their own systems and saw in SMATV the opportunity to do it all over again. Most were people you wouldn't invite to the house to meet your wife; Ted Turner on steroids. They had a game plan which Brown liked to discuss behind closed doors. By 'cherry picking' developments where lots of people lived in close quarters, they could tap the mother lode of future cable growth. And they had a plan - which Brown on several occasions shared with me (not that I had to have it explained to me anyhow!).

"When cable TV does finally reach the development, the SMATV guys will already be there. They have no intention of battling cable - they will demand (and get) big bucks on a per subscriber basis from the cable system knocking on the front gate and sell out." There was nothing like capital gains to encourage junk bond sales! What Brown did not reveal was his ownership in a set of Alaskan SMATV systems, on military bases under contract, and therefore he had a 'vested interest' in how all of this 'signal theft' turned out.

Decades later there was a brief interval in the development of the Internet where web site addresses (such as, www.coke.com) would be available on a first-come, first granted basis. I often wondered in that era if the same people who had run around the United States (but largely in the heavily populated states or rapid development areas such as Florida) gathering SMATV 'contracts' were twenty years later out there registering names like www.ford.com so they could months or years later sell their 'registration' to the logical and legitimate owner of the trademarked name.

Atlanta at the end of October. If Rip Van Winkle had been a designer of TV reception equipment in 1962 and fell asleep to awaken first at the STTI Atlanta show, possibly he would have grabbed his heart and muttered a line made famous by Fred Sanford: "This is the big one!" More than 2,000 attendees (an exact count was hardly possible because Schneringer was handing out passes with far greater abandon than ever before), 141 exhibitors and 71 antennas (these could be counted, and I did so). If HBO didn't have enough to worry about, several Atlanta announcements would bring on Fred Sanford's heart stopper reaction back at Time, Inc.

WalMart, the Arkansas based chain, was offering home dish systems for sale; the big time had arrived. Retailer Montgomery Ward was close

to a similar marketing plan backed by Iowa antenna manufacturer Winegard. A quiet, mild mannered California engineer named Norman Gillaspie, who first appeared at SPTS San Jose in July 1980 with a receiver design that lost out to David Barker's Image Reject mixer which KLM ran with reappeared, showing off very high quality pictures on a six foot antenna. A six foot antenna could be "wham-bam-thank-you m'am" slam dunked into the ground, hooked up and be making 'pretty pictures' in less than two hours by a skilled two-man crew. Of course the smaller dish and the rapid installation time would further erode pricing on 'completely installed home systems' and significantly broaden the 'home dish market base'. And to further muddy the SMATV puddle, several firms were openly offering 'license agreements' with programmers, not HBO to be sure, but still capable of turning an otherwise 'grey market SMATV system' into at least a 'legal entity' if and when someone chose to haul them into court to answer piracy charges. Two hours on the ground in Atlanta would and did give HBO plenty to muse about back home in their New York City walnut panelled offices. All of which re-enforced in my mind that despite their very public claims in the Wall Street Journal they were 'about to scramble', it was still some time away. Moreover, my 'the door is always open' entry into essentially any firm in the business (including HBO), where I could go 'off the record' and discuss the true status of scrambling, gave me plenty to ponder during those multi-hour flights back to Provo in an Ed Hegner tail dragging airplane.

Schneringer by Atlanta had totally debased 'my little show' and while he still counted reasonable receipts from attendees, at $15 or even less per head in the door, it was 'small change' when compared to his take from the exhibitors whom he continued to entice by building a 'program presentation' from major firms into the 'package price' that included the purchase of large scale exhibit areas. He was now ready for the whoring capitol of America; Las Vegas in March 1983. Satellite had arrived.

Some of us were targets in 1983, convenient to take aim at and fire. I had been there before. Way back in 1960, as a newly working journalism major at radio station KFIV in Modesto, California and a stringer for our affiliate masters at ABC, I was taught the basics of radio newscasting by one Gene D'Accardo who knew more about creating an effective newscast than anyone I have ever known; including Peter Jennings. My first job at KFIV was to 'rip and read' AP wire newscasts at :55 (5 before the hour) several times per day. Simultaneous to this mundane chore, which was made complicated only by sicko fellow

station employees who conspired to sneak into the news announce booth after I had begun reading the yellow tear sheets into the microphone, setting fire to the copy in my hand, was D'Accardo spending long hours teaching me the essence of good news reporting. He was from the 'brief, concise, unadulterated' school of broadcast journalism. "Local milkman raped by frantic housewives," for example. I choose this example because whenever the local Modesto news was slow, I quite deliberately sat down and fabricated something which he could use to lead off his highly rated local midday 15 minute newscast that preceded the equally popular Paul Harvey feed from the network. 'Milkman raped' was one of those 'slow news days and after I had done 50 words which Gene reduced to 37, all of the time chortling and shaking his head in disbelief, he cleansed his own skirts by asking: "I need your assurance you have checked the facts here," he spit through his ever present cigar towards me at my desk which faced his head-on in the KFIV newsroom. "You have my assurance", was my answer which he would jot down on the rear side of the news copy sheet, date and affix a time to. This was his way of building me into the 'chain of reaction' which experience soon taught him often followed a 'Cooper original' news story. Gene's noonday local newscast had been highly rated before I arrived, shortly it was significantly ahead of the competition at KMOD and KTRB. I would encounter the competition news guys as early as 6AM while making the rounds at police and fire headquarters in downtown Modesto and invariably they would ask me for some 'detail' or the 'source' for Gene's 'Milkman raped' class of stories. They read the same police and fire blotter reports as I, and it baffled them how they so often missed 'choice stories'. It also baffled their bosses who were agonising about Gene's suddenly extra-popular midday newscasts. The answer was, of course, I made up stories when things were slow.

"Can we feed this back to AP?" he would ask after such a newscast. He was a clever guy, part-time grape rancher, part-time ex-San Francisco KNBR (owned by NBC) news director. He had forgotten more about radio news learned during the late 30s, through the 40s and 50s, than I would ever absorb. "Can we feed this ....?" was his way of asking me, "Did you make this up?" He never wanted an admission I did, of course, because then he'd have to rebuke me for creating news which was only news after he read it - not prior. It was my place to answer, "Sure - why not!" if I thought the story harmless and totally untraceable to any living human being. Sometimes the story had the barest of factual foundation ("milkman raped ..." did not) and in that event

what he read on the air had been discarded as something very mundane until I was faced with five minutes before his newscast began and no lead story. In which case I'd attempt to turn a harmless and already passed-over local event into something he could 'lead' with. As I was starting with the 'barest' of 'real' facts, it was then my 'duty' to answer that same question ("Can we feed ....") with a, "No, I think not." In Gene's mind, it was preferable to totally fabricate than to take some local news tidbit and turn it into an exploitation piece. Total fabrication could not be checked, exploitation stories might actually trace to someone in the listening area! Reading either category on the local air was one thing - having a story repeated courtesy of AP at hundreds of radio stations nation-wide was quite another.

Sooner or later I was bound to stumble into real news stories of some importance. It began when Gene decided I should do a recap of the day's top local stories at 5:15 nightly, essentially his 12 noon news updated or if there was nothing to update, at least rewritten to 'sound new' to those who might have also caught his midday version. I was 'just another voice' on the radio until this evening version launched, then suddenly I was someone that seemed to attract lowlifes like local dairy farms that forgot to clean the milking pens the night before gathered flies.

In recent years Modesto has turned from a backwater half-day-trip-to-San Francisco into a place where people actually live full-time to commute into the Bay Area. The 30,000 population of 1960 is pushing a half million these days and between their local Congressman and a fellow charged with murdering his 9 month pregnant wife and unborn child, almost everyone can at least spell M O D E S T O even if they are not certain where it is located. We didn't have a lily white atmosphere in 1960 but at least we never made Fox Cable News 24/7.

Modesto in the 60s was part-white and part-Mexican. Without casting dispersions on the Mexicans, they were showing up on the police blotter in about a ten to one ratio over the whites with 1/4th the population base. Within that 25% of total population there were Mexican street gangs which from time to time had conflicts over 'territory' - areas of commerce one gang dominated which another gang thought was ripe for a take over. Modesto's city fathers were largely old time settler families dating back 50 to 100 years and the 'image' they insisted on portraying was a small valley town with a strong agricultural economy and more churches per capita than any town in California. After I had lived there for twenty five years and kept my skirts clean, I might be invited to dinner parties. As fate would have it,

I didn't make even 25 months.

"I've got a tip for you," said the voice on the phone. "Can you meet me at Sacramento and 'L' in 15 minutes?" The voice was female and spoke with an accent. A Mexican accent. In that day's 5:15 report, which I had just completed, there had been a story about two Mexican youths slashed up badly with knives and I had reported police were suggesting it had something to do with a 'territorial squabble'. Normally anything violent involving a Mexican barely rated a two line mention in the back pages of the local Modesto Bee newspaper and I had quite consciously, with Gene's approval, slid such police reports closer to lead story status. The Modesto Bee believed news concerning Mexicans was a turn off to white readers, you see.

As my day began at 6AM and the police blotter routine, and I was now not finishing until at least 5:30PM, being dragged out 'after work' was not something I approached with a smile. But I went, partly intrigued by the allure of the soft spoken female voice and partly curious why I would be called at all.

At the time I drove a 1960 Austin Healey, fire red, the only one in Stanislaus County, making me almost impossible to miss. I couldn't afford such a car but being gainfully employed at a time when credit was far easier to establish, I had it anyhow; me and the car finance agency. I parked it on L street and sat still not certain what to do next. The passenger side door opened and one of the most attractive women of any race I had ever seen dropped her very Hollywood figure into the leather seat next to me.

"Drive across the tracks," said the familiar voice, "and I'll tell you where to go next." I did so and said absolutely nothing. But I was thinking lots of things, not all of them those of a Christian family man.

"Go behind the packing shed," came next. I slowed, turned left and in the headlights could see two cars parked with their tail lights burning. "Pull in between the two," she next instructed.

Now for the first time my thoughts were of personal safety. I had told nobody about the call and at home my wife and son would be expecting me to arrive. Leaning against the hood of the two expensive, black, Mercury cars I was now stopping between were maybe 4 or 5 leather jacketed fellows. In my headlights I could see they were Latino, pure and simple. They did not move when we stopped like meat in a sandwich between the Mercs and I received instruction number four from the Seniorita.

"Stay here until I motion you to get out, then come to me."

She got out, left her door ajar which I immediately noticed and sauntered over to the group. There was conversation I could not properly hear and had I been able to, would not have understood as my Spanish was just good enough to pick out a local restaurant that specialised in refried beans from their rooftop signage. Then the "come hither wave." A deep breath, open the door, slide my 6 foot 2 inch frame out of the British-built for smaller-people doorway and off to the gathering.

"You the news guy?" asked a fellow who stood perhaps a foot in front of the rest. The lovely lady whom I now observed to be wearing leather clothing that must have been applied with a spatula and perhaps would only come off with a sharp knife was leaning on his shoulder; a sign of property ownership thought I, affirming I was "the news guy."

"Want the truth?" he continued. At this point I had no idea "what truth" we were talking about but as I was outnumbered, surrounded, and verging on wetting my jockey shorts could only nod my head and mutter, "please ... yes."

I was barely 22 at this point in my life and while anything involving inventing satellite TV or living on a funny island in an unmarked country in the Caribbean had never crossed my mind, minimally I was looking forward to being 23. So I listened quietly as this fellow did a five minute monologue - mostly in English but accentuated with Mexican slang which I eventually worked out was his way of emphasizing some word that followed - kind of like people say "you are no fucking good" when "you are no good" would have been adequate. In 50 words or less:

The two guys I reported 'slashed with knives' were in fact 'shot with a gun'. By a police detective who had tried to apprehend them when caught in an act involving setting a bomb in a car to blow up the fellow who was standing in front of me and using Mexican swear words.

The more his story went on the madder he became. He had been nearly killed by two members of another 'club' (their word for gang) and the police chose to totally ignore the attempt on his life and then turned around and blamed another 'gang' - his 'club' for the wounds the two suffered, at police hands.

"Will you tell on the radio what really happened?" he ended.

My first mental response to his question was totally abstract. "D'Accardo will NEVER let this on the air - it is too bizarre!" The group could see I was pondering what I had been told and graciously gave me a minute to think over the question. My thoughts were fast and jumbled

but ran something like this.

"The police had a reason to fabricate the story about the wounds. They are obviously on a bigger mission here than I can work out at this point. The other gang must know - I hope they know - it was not these guys that slashed or shot their commando squad planting the bomb. But if they don't know and if they believe the police release which I have reported - well, who knows what retaliatory act is already being planned. And then - Jesus Christo! - I am standing here with these guys (and the lovely lady) in the headlights of my Austin Healey!"

Finally I spoke aloud.

"Why do you think the police said they were slashed when they were really shot? And why do you think ....?"

His answer. "To stir up the local brothers. To put us at each other's throats. So they can wipe us all out at the same time."

The Seniorita "The police want us all dead, or gone. I think you are brave enough to deal with that."

OK - Don Quixote is her reference. Give me a sword and put me on a horse - or the radio in this case - and let me flail away at the police department windmills. "Good grief," thought I, "I'll have to live here a lot longer than 25 years to get invited to a society dinner party now!" It was a private joke I shared with my wife.

The senorita, again. "We know this is dangerous. May I suggest you go to the hospital and learn first the true nature of the wounds? Then when you have that confirmed, go back to the police and ask them why they released the story about a rival gang slashing these two when it was in fact police bullets that wounded them. And that in turn will lead to ...."

The leader raised his hand and she stopped abruptly, mid-sentence.

"He knows what to do - we do not tell him how to do his business. We just ask him to go now and do it. I told him what really happened - let him confirm and report it on the radio."

I was smiling, prematurely it would turn out. He put out his hand to shake mine and smiled. The seniorita dropped her fingers from his shoulder, pecked him on the cheek affectionately and took a step to me grabbing my arm.

"We go now," said she tugging me towards the parked AH. "Please take me back to Sac and 'L,'" she requested, "I have a car there."

I nodded adios while bending over to fit into the too-small sport car and this vision of extreme loveliness slid her bottom into the seat beside me. I decided I could spend a day or longer watching her get into and out of my car, all in the interest of art, of course.

"You handled that well," she began as I very slowly backed up and turned around. "I told Luis you'd be 'OK'. I have something for you if you wish to carry it." With that she reached inside of her abundant blouse top and drew out a coal-black, shiny 38 caliber revolver.

"Stick this in your belt," she instructed, "but be careful - it is loaded."

I did not reach for the weapon.

"Go ahead - we don't want anything to happen to you - at least not until you make the radio report!" and she laughed. We had just crossed back over the tracks, now we were on the 'right side of town' (as opposed to the Mexican side where we had met Luis - if that was his real name) and I pulled to the side of the road and shut off the motor.

"This is all a bit much for a young white guy fresh out of journalism school" I began. She was smiling again, enjoying my pain. "Look," I continued, "I'll go to the hospital tomorrow morning and then depending upon what I learn there next to the police station to locate the detective who you say shot these two fellows. But I have a very hard nosed news director and even if everything Luis told me is 100% true, I cannot forecast how he will handle the story. If it is exactly as Luis has told me, this entire town could blow up."

"I know that. And that's why I want you to have this," pushing the 38 back towards me. "This is my idea, Luis does not know I am giving it to you. I like young, white guys. Just be careful when you stick it behind your belt it does not go off and damage something important!"

Great. In 60 minutes time I had walked out of the news booth, answered a phone call, driven my car to a clandestine meeting with one of the most beautiful women I had ever encountered in my life, been introduced to a 'club' of five guys who were probably armed to the teeth, been told about a conspiracy to start a civil war in Modesto and now this seniorita was hinting that she had plans for my 'young, white body'. Some days you just never knew what to expect when you got out of bed.

I took the pistol, gingerly, but decided not to insert it into my waistband. Having the barrel pointing at your private parts seemed like a pretty stupid thing to do. Fifteen minutes later, home, I neglected to advise my family of any of this - mumbling something about 'following up a news story' as my explanation for leaving dinner cooling on the table.

My standard KFIV morning was rushed to the point of split second timing as a 6:55AM 'rip and read' news report was part of the routine. By 9 I was clear enough to head out to the hospital where by flashing

my KFIV and ABC news reporter laminated ID cards I managed to get some time with a lady in the records department. She turned quite white when I explained I wanted more detail on the 'two Mexicans slashed in a gang fight two nights back' and ended by asking if they could have a visitor - me. She was Mexican and 'turning white' was a significant feat for her brown skin. She excused herself and disappeared to an inner sanctum. It was at this point I noticed for the first time a sizeable group of Mexicans taking up virtually all of the chairs in the waiting area. In the daylight they looked like dead ringers for the group I had met the prior evening, but then what does a Gringo kid know about how Mexicans look? Like the black man said to me once, "You all look alike".

Ten long minutes and the records lady reappeared.

"No to both questions. There is a police guard on their door and even their families are not allowed to see them," explaining, thought I, the group outside in the foyer.

And then she did something quite curious. The file folder which she had been carrying was carelessly laid down on the desk between us, open, and she got up and left the room for the second time. Several words, reading upside down and backwards, jumped off the sterile hospital form. 'Gunshot wounds'. At the top of the page, the name of the Mexican youth who's name had been on yesterday's newscast. Bingo.

I immediately stood up and headed for the door, walked past the somber crowd of Mexicans in the waiting room trying to memorize faces and clothing and back into the Healey. Next stop, the police station.

Me to the detective, someone I knew slightly from prior news stories. "Tell me more about the two Mexican kids that were cut to ribbons by a rival gang," I began.

Detective to me: "It's all in the report, surely you read it!"

Me: "Not quite all - I've just been to the hospital and they are under police guard, can receive no visitors and then there is the matter of the gun shot wounds."

The detective turned his own shade of color - crimson red with anger, as he shouted at me, "That's not true - there are no gun shot wounds! You are on a fishing expedition!!!"

Not quite and he knew it.

Me in response: "Let's hypothecate for a minute, try to connect the dots here. These two kids are caught under the hood of a black Mercury car (I was taking a chance on the car) wiring up an explosive charge. Somebody catches them in the act and somehow they are both shot.

How am I doing, so far?"

"Get out. And don't you dare put that story on the air or your bosses will have real trouble!" He was still crimson red, only now a couple of shades brighter. I left, smiling, but making no promises about releasing or sitting on the story. Back to the station, into a private room at KFIV with D'Accardo.

I started my recollections in reverse - with the detective, and Gene stopped me shortly after I began.

"He's already called me. I've never seen him so angry, you must have stuck your foot into his private stash."

So I began at the top with the call from the Seniorita and all the way through to my experience at the hospital.

"Do you buy the version Luis told you?" he asked. I did.

"I've seen this coming for a couple of years. The street gangs have grown bolder, the police have grown more exacerbated, and the news media because of their attitude about separating 'Modesto Problems' from 'Modesto's Mexican Problem' have largely ignored the growing resentment between the participants. Where's the gun?"

He meant my gift from the still unnamed Seniorita. I had stuck it under the seat in my Healey; that's where it was.

"Go and bring it here. Carrying a concealed weapon without a permit will get you and the station into big trouble. Are you more comfortable with or without it?"

I had to admit to mixed emotions - as well as the truth. "I have not the foggiest idea of how to even use it!" Gene suggested I leave it with him, locked in his desk, and promptly go down to the police department and file an application to carry a weapon. To substantiate the request, he returned to his desk and whipped out a 50 word letter to the Chief of Police as a formal request from the station that I be issued a concealed weapon permit.

Handing it over to my now sweating hands he iced the cake by postulating, "This won't go unnoticed down there. You have Detective (we'll call him Jones but that was not his name) on a rampage already. They may turn us down. Or," he chuckled, "they may figure you getting yourself shot is an easy way for them to get you off the case!"

"Oh yeah." he continued, "give me 50 words that won't get us knocked off the air or you shot about this before you head out."

Normally 50 words would come out as 75 or 100 and Gene's number-one editing pencil would carve out excessive verbiage until he had it in his own unique delivery style. Gene taught me about grouping words into three or four word groups, with a pregnant pause

between groups, so to the listener it sounded like someone talking in consecutive bursts of speech. His editing style included drawing broad lines between the 3 or 4 word groups so his eye told him when to pause for a fraction of a second too long as he read the copy. And normally I would have the 75 to 100 words done in two minutes or less. Ten minutes later I was on the fourth revision and he hadn't even seen it yet.

Looking over my shoulder, he volunteered, "Maybe you are too close to the story. Let me try," and he scooped up the several sheets of disjointed text and headed for his desk.

"Now, get down there," indicating the police station, "after you bring in that 'object'," handing me a paper bag so that other staffers would not see me walking through the offices fingering a weapon. I would first hear his version of the story through a police station desk radio; an interesting place to be as the police department first heard Gene suggesting that the "full and complete story" of the two injured youths "has not been revealed in the police report."

"How fast you want this?" asked the desk Sergeant. I answered, "Today would be good."

"I think the Chief needs to approve it, under 'the circumstances'," was his response. I thought better than to question what he meant by 'the circumstances'.

I half expected to have another telephone call from 'the Seniorita' that day; there was none. And for my own 5:15 review of the local news, reading totally intact Gene's text about this story not sure I wanted to be rewriting it at all. And for a change I was home on time at 5:45.

If nothing else I was as regular and predictable as clockwork pulling into the police headquarters at 6AM. To get there I drove down Modesto's newly created one-way streets, through traffic lights flashing amber or red as suited the location at such an early hour. A flashing amber ('slow down - caution') was one block before the police facility. I slowed down but rolled through certain I had detected nobody coming from my left - the direction the one-way cross street traffic ran.

He never hit his brakes. At perhaps 40 miles per hour the previously battered pickup truck plowed into the passenger side of the Healey, spun me and the car topsy turvey around and over and over finally coming to a halt with the shattered remains of my car precariously balanced against a street light. The pickup truck had been heading down the one way street - in the wrong direction. I was conscious, blood was covering my eyes and face from a forehead gash and the

seat belt had dug into my chest and stomach leaving burn marks that would turn into ugly bruises in a few hours. But I was alive and in fact not seriously wounded. The car would never drive again under its own power, the frame had been bent into a giant V and the 'Seniorita's seat', the point of impact, was found several hundred feet away where it landed after being thrown through the windshield and soft cover top of what remained of the car's upper body.

I missed the 6:55AM newscast but by 7:55 was sitting in the news booth leading off with the story of my own accident, reading blood stained copy. Shortly after which the Seniorita called with a cryptic message she delivered to me through Gene.

"That was no accident. Did you know the police tore your car apart looking for something - perhaps that 'present' I gave you?"

It was at this point KFIV dismissed me for a day of rest and recuperation while D'Accardo made his first in-person visit to the police station in something like ten years. They were impressed and as he later related to me, "Very guarded in their responses to my queries."

Gene's midday local newscast was a classic chain rattling message of caution - to an entire community. He spoke quite openly about what had happened to me, how KFIV (meaning me) had been alerted to some 'discrepancies' in police reports concerning Mexican 'club members' and promised to 'stay with this story until its logical conclusion'. For that report on-air, the station was emptied mid-afternoon by a telephoned bomb threat and after dusk that day the station's chief engineer discovered two fellows in black clothing prowling around the base of the transmission tower carrying canvas bags. KFIV now went onto full alert and the station manager, a wimp of a guy who only wanted to be wined and dined by local politicos and to see his photo on the society page, decided, "That Cooper kid should take some time off - maybe a week - until this blows over."

As the entire community now knew what had happened, a very worried wife Carole arrived home from her school teaching day with a long list of unanswered questions. I had 'neglected' to even alert her about the car 'accident' and of course she had called the station to be advised I was 'home for the day'. She was on page two of her carefully crafted and concerned questions (always the school teacher) when the doorbell rang.

It was 'The Seniorita' and Luis, alone. Now my wife Carole, of old-line Modesto Scottish heritage, a liberal Democrat by persuasion who would later that year vote for JFK, was not prepared for the two people standing there in her doorway; not these two, anyhow. She fainted,

dead away. After recovering she would explain to me, "I didn't know who they were and I could plainly see a bulge behind his jacket that strongly suggested a gun. I figured, 'this is it', we are dead people."

In fact Luis and his moll had come to reassure me that they had "Things under control." Moreover, "We've stationed some club members around your place and we will run in shifts 24 hours a day until this calms down." Carole at this point wisely decided to take our son Britt and head to Fresno to visit my family, failing completely to convince me to go with her.

Meanwhile Gene had convinced station management that I could stay 'on the story' and send over news copy without actually being at KFIV. His position was, 'The kid has an inside track with the people involved in this and if we don't make use of this information, we are missing the news story of the decade here'. Management decided that if it was plain to the world I was not at the station, perhaps the bomb threats and stealthy characters crawling around our transmission tower would also stop. At the same time Gene renewed our request for me to carry a weapon which quite to my surprise came through within a few hours.

For the next week I spent tens of hours with 'The Seniorita' as we made the rounds where the club and its followers hung out. It became her habit, as she was practically living with me and I still had a 24 hour 'club provided' guard, to read over my shoulder as I worked out the news pieces for Gene's newscasts. Which by the second or third day were creating the highest station ratings KFIV had ever experienced. I must acknowledge her 'contributions', by adding to my stories 'Mexican street words', had a significant impact on the force of what Gene reported (and possibly also greater increased our 'audience rating' with the Mexican audience). I also noticed he virtually never edited out any of her contributed words or phrases. Luis, sometimes accompanied by 'the guys', would drop in unannounced virtually anytime day or night and this had the immediate effect of causing my duplex-unit neighbors to first request their own police security guard and then when that failed the young couple and child living there decided they, too, would go away to visit relatives.

This had to come, as Gene suggested, to a 'logical conclusion'. It did. The police department announced an internal investigation, 'discovered' the detective involved had indeed shot the two original 'slashed' youths, and that at least one level of superior above him had participated in the cover-up. The day Gene wrapped the full story up on his newscast, vindicating Luis and The Seniorita and their club members,

she kissed me on my cheek with a tear in her eye while Luis embraced me with a giant hug, his belt mounted weapon sticking into my still sensitive ribs. I never saw nor heard from either again.

My stint at KFIV lasted through the Presidential election campaign with a reputation for 'doing the tough stories' that made some people very angry. We embarrassed many politicians, uncovered a scam involving the newly proposed Stanislaus State College land site, and otherwise kept Gene's noonday ratings at the top of the pack. Perhaps my fondest moment was a period of less than an hour which I spent on the 'JFK Campaign Train' as it followed the tracks down through the San Joaquin Valley with a stop in Modesto. Years later my son Kevin discovered an archive photo of JFK and myself at one of these stops from an at-the-time Modesto Bee newspaper; that photo hangs prominently on my wall today. I was the one who asked him with radio and TV recording the question, "How do you respond to fears that a vote for you is a vote for the Vatican taking over the United States Government." A silly question, perhaps, but one on many people's minds, especially at the Nixon campaign where they wanted to play 'the religion chip'. I can now reveal that JFK had a carefully crafted answer and well he should have as one of his aides had thrust the previously prepared question into my hands just moments before the whistle-stop train arrived in Modesto, making me the 'patsy' to ask it with cameras and recorders rolling.

Throughout 1960, from January onward, I was moonlighting with publication of my first monthly magazine (DXing Horizons) and it was a given that when the magazine became capable of supporting my family I would do my '30' (final newscast) for the radio station. Shortly after Kennedy's 'Campaign Special' crossed through the valley, it was indeed 30-time and I never looked back; the last occasion in my life when someone other than myself signed my paycheck.

Returning to 1983, Bob Behar was now the President of SPACE but clever Rick Brown had pushed through a new Chairman of the Board position to which a man named Bud Ross of Kansas manufacturer Birdview was so positioned. Tom Humphries who began his TVRO life selling LNAs for Texas firm SCI and ended it as the man in charge at Microwave Associates home equipment program, was now a full-time resident of Provo. Humphries had turned 42 during 1982, and he handled mid-life crisis by separating from his wife, leaving a big-time 5-figure paycheck position, and landing on my Grace Bay doorstep with a case of beer under his arm. His timing was superb - I needed skilled help and we had a spare room in 'The Annex'. For six months

he sweated in the Caribbean sun, lost 30 pounds, turned a honey brown and created a number of very successful WIV and CSD projects for me. As it would turn out, Tom was but the first in a continuing line of satellite people who would abandon both the United States and the rigors of organized business for the still idyllic lifestyle of Provo. America's loss - 'The Islands' gain.

'Thinly stretched' might best describe the major events of 1983 in the home dish world. For example, National Microtech whom CSD had saluted editorially in January 1982, had a new boss-man. And founders Horton Towns and Dave Fedric were quite literally 'throw out' by stockholders who found the firm over extended and facing bankruptcy, replacing the duo with a man from Microwave Associates - to whom National Microtech was heavily in debt (ordering too much equipment, which did not sell well enough to meet the M-A terms, leaving a big debt to the supplier). From 'Man of the Year' to unemployed, in 12 months. Further, after home dish pioneer Norman Gillaspie demonstrated a smooth running 6 foot antenna system at Schneringer's Atlanta show in late October, the industry began planning for the next big shindig - Las Vegas in March. Gillaspie's innovation using a smaller antenna challenged others to do the same, or even do better - such as with four-foot antennas. CSD tried to put a lid on this 'rush-to-small' by detailing that every satellite in the sky, when new, was operating at 'maximum power' but over the next few years there would be incremental reductions in transmission power each month; ageing. Bottom line? People who were planning to sell 5 or 6 or 7 foot home dish systems that might work fine on the day they were sold were facing a medium and long term liability when the satellite power went down and the pictures received became unwatchable. Think of it this way: A 100 meter sprinter can whip anyone in the first 100 yards but if the race is 1 mile long, he's a goner long before the finish. Smaller dishes were 'sprinting' when the signal was strong from a brand new satellite, but 'badly winded' on a longer 'run'. The logic of this escaped 90% of those who were selling dishes following the 'wham - bam - thank you m'am' philosophy; I might as well have been writing Grimms Fairy Tales for all they comprehended.

My 'passion' for digging out 'the facts' and reporting 'the truth' was a major element in the growth or direction of the industry throughout the tumultuous year 1983. An incident occurring during the STTI Las Vegas gathering in late March illustrates. Over the years, CSD had been closer to the heart of the industry than many people might have wished. There were no 'taboo' subjects and even some

close, personal friends such as Bob Behar of Hero Communications would find reason to 'question my friendship and loyalty' from time to time. In Behar's case, he had provided a 20 foot Hero antenna to WIV's Provo installation because he was anxious to have our analysis of its performance plus of course the 'abundant publicity' of an equipment review in CSD. When his antenna was first installed, under the tutelage of Tom Humphries, we had nothing larger than a Microdyne/AFC 15 foot as a comparison. That 'contest' was akin to pitting a Corvair against a street-ready Corvette. Subsequently Hero competitor ADM provided a 20 foot of their own design for test and we did the inevitable comparison between the two twenty-footers. But our tests were modestly flawed because the Hero was located at Grace Bay's WIV facility while the ADM was installed as one of the first antennas to go at WIV's new island-center 'Tower Plaza' television broadcasting facility (the future home of 'The Ice Cream Shoppe'). It was like driving the Corvair around one test track, the Corvette around another and then 'comparing the numbers'. Ideally, when you compare two antennas, they are both at the same location at the same time, and during the course of testing use the very same test and measurement equipment while receiving one common satellite channel or signal.

ADM measured better, on the two-separate test tracks. And I said so in print, which immediately attracted the wrath of Behar. But it happened that Andy and Patricia Hatfield of receiver manufacturer Avcom of Virginia were on Provo during the tests, along with Jamie Gowen of ADM who supervised the construction of his dish. And Hatfield was, felt I, so well recognized for his unbiased, careful attention to detail that if he was the one validating the two separate measurements, we could even beyond my own lack of bias and that of Tom Humphries as well, depend upon 'Andy's numbers'.

Behar had spent several years building a reputation for his antennas and without question he was the primary supplier of large antennas to outside-of-USA installations. ADM's 20 footer was their entry into this very lucrative market. The impact of the CSD report was immediate; Behar had three orders for his 20 foot antenna cancelled and ADM instantly found itself with the same three in their shop. And this was but the tip of the iceberg - although it represented perhaps $50,000 in business for a start. Behar wanted a 'replay' - now! Which resulted in a second Hero 20 footer arriving by air freight, immediately followed by Behar in person.

Behar's friendship was seriously stressed by this incident. He knew,

and I think admired, that I said what I saw to be the truth, even when it was not to the advantage of a close 'friend'. But he still was angered. I delivered this particular edition of CSD to Bob personally, being in South Florida at the time. He read it, stopping to look at me with a serious frown several times, and finally laid it down on his desk. "I am not pleased," he began, reaching for the telephone. Momentarily Tay Howard in California was on the speaker phone. Taylor began by questioning, "How 'You' (meaning 'I') could determine a small difference of perhaps 1.5 dB on Provo between the two antennas when they were not located at the same place at the same time receiving the same signal?" Taylor had never been on Provo, and in fact would never go there because of his animosity for me personally. Which led to my retort - "If you have not been there, how can you question our techniques?" A not friendly discussion followed and that in turn was followed by a 'Stanford Professorial letter' drafted by Tay for publication in CSD in which he questioned everything we did to compare the ADM and Hero antennas. None of this was a surprise to me - Behar had 'hired' Taylor to refine the Hero antenna products and Taylor was simply 'earning his outrageous consulting fee' by writing the letter. I published it in CSD, without editing, along with a seriously antagonistic letter from Behar. None of this prevented me from being invited to Behar's home for dinner, that night or in the ensuing months. Our close friendship survived this encounter and more yet to come.

The original Behar antenna had been assembled by Humphries plus my two local satellite trainees Valentine Pratt and Peter Stubbs. Behar did not question anyone's qualifications, necessarily, but kept suggesting to me that 'the guy who designs the antenna knows far more about the little assembly steps to achieve maximum performance than the very best field installers'. Interpretation? He was saying, "I will come down and build this one - myself!" Which resulted in ADM suggesting they too would ship a second 20 footer to Provo and Jamie would return for a side by side shoot out. Only in the unpredictable satellite world of 1983 could two competitors line up on a sandy beach in an 'unlisted country' for a shoot out. Shades of 'the OK corral!' Hey Guv: "How are we doing, so far?"

What this illustrated was the very significant impact that a few sentences or paragraphs in CSD could have in the business operations of industry suppliers. And that gets me to a new 'death threat', reminiscent of my days at KFIV radio and the Mexican 'clubs'.

During the Las Vegas STTI, while (quite by happenstance) I was sitting in the Avcom booth discussing the state of receivers with Avcom's

Andy Hatfield, two well known people spied us talking and stopped to interject. One of these was Mike Brubaker, the sales manager for the RL Drake Company of Miamsburg, Ohio. Drake had been building ham radio equipment from the late 1930s, entered the home satellite receiver world in 1981 just as fellow ham radio manufacturer KLM had done a year earlier. Drake was not the best product but it was close enough to be commanding between 5 and 8% of the total marketplace - very respectable. And unlike most of the satellite receiver firms at the time, Drake had a multi-decade 'foundation' of business experience in very similar products. That made Brubaker and his boss Peter Drake (son of the original founder) important folks.

"You are going to be a dead man, soon!" began the chap arriving with Brubaker. They were angry words, more shouted than uttered and he was not directing to Hatfield nor Brubaker. "You have gone too far - you will print anything that comes along and you have no regard for what you write doing damage to a company or product. If the two Dushane brothers don't kill you, I will. I've already signed up a crew to invade your damned Provo and wipe you and your family out on that asinine beach you own."

The 'Dushane brothers' were a pair of California businessmen who had introduced a line of antennas which although 'pretty' in appearance were manufactured with low-grade steel mesh and cross members. Previous to entering the home dish market, they designed and sold 'creative consumer jeans' (pants) which apparently did not do very well, or they would have stayed with 'cloth' rather than moving into 'steel'. Then to complicate user problems, the steel they used was not properly 'protected' and as the antennas sat outside in the wind and rain and corrosive air, the steel began to rust. I had featured a full-color close up photograph of a six month old Dushane-created antenna product on the front of (April 1983) CSD and in this case a photograph was worth a million words. Anyone could see the antenna was essentially useless because of the rust damage. Naturally when that photo appeared with appropriate words describing the problem, sales for this antenna all but stopped. Understandably, the Dushanes would carry a grievance with me for many years and not be advertising in CSD.

My verbal attacker was David Wolford, the ex-cable guy who had fluttered around the perimeter of the new satellite industry by launching his monthly 'SatGuide' publication. What I did not know during this particular outburst was Wolford's plans to create a direct competitor to Coop's Satellite Digest and while he may have really believed, "Coop

is a threat to the healthy growth of the satellite industry," (his opinion, which of course he was entitled to hold), upon reflection what he was doing in front of Hatfield and Brubaker was 'previewing' his own approach to publishing a magazine for satellite installer/dealers.

In early 1983, CSD remained the only magazine for the entire industry, the 'bible' of those who made TVRO a business. Wolford had watched, perhaps with some jealousy, as CSD had doubled in size, was obviously making money and he wanted 'his share'. He apparently believed that the way to launch a new magazine in competition to me was to promise manufacturers that his magazine would 'never write naughty words' about their products.

I reported the entire outburst (it could hardly be described as a 'conversation') in the next edition of CSD but neglected on purpose to identify who this 'wild eyed person' was doing the attacking. However, I did mention the two witnesses to the antisocial act - Brubaker and Hatfield - by name and it did not take long for anyone who cared about the attacker's identity to learn it from one or both.

Thirteen years after this out-of-control outburst, while conducting a 'Satellite Seminar' in Auckland, New Zealand with an old friend, Mark Long, I was fascinated to hear the opposite side of this same story as Mark described it to the perhaps 200 satellite folks sitting in the auditorium.

Long related, "When I worked for Dave Wolford and his various magazines, it was my assignment to receive for test various pieces of satellite hardware which after testing would be reviewed in print. Unlike Coop, who as often as not destroyed products in his reviews by identifying all of their weaknesses and problems, Wolford's instructions to me was to 'only mention the positive - never anything negative'. I had a difficult time with this dictum and I recall one antenna brought in for test by a fellow who quite obviously did not have the slightest grasp of what a satellite antenna should do, or how it must be designed. The antenna was, none the less, assembled and tested and try as I might there was no way I could identify even one positive thing to say about it. I called Wolford and told him this and he said, 'Find something positive or I will find a new test guy.' I parted company with Wolford and his publications shortly after this."

What makes all of this especially amusing was another incident involving Wolford and the trade association SPACE. A committee of SPACE board members had been formed in mid 1982 to study the challenges involved in creating 'industry standards'; Rick Brown's put-it-off answer to complaints about product integrity, a topic he wished

not to seriously explore. Virtually every manufacturer of products, whether antenna, receiver, LNA or something else, used his own definition of measurements to describe his product. Standards existed outside of the home dish industry, not inside. One 11 foot size antenna manufacturer would claim 41 dB of gain, a competitor 42.5 and so on and nobody had even the slightest clue what the numbers really meant. It was of some importance that you be able to compare product performance based upon identifiable references, especially when new-to-industry dealers with no background in satellite communications were turning out by the thousands at Schneringer shows and making purchase decisions based largely on printed data sheets created by the manufacturers. The opportunity to 'misstate' performance was there and the incentive to do so, enormous.

There was intense pressure on the SPACE committee to define measurement techniques, but Rick Brown saw more lawsuits here if SPACE tried to define a set of standards which of course was the primary reason why through CSD I was conducting detailed equipment performance tests and publishing reviews. Wolford figured he could force SPACE to become the responsible party in all of this by rattling his sword and threatening the trade group. As a journalist and member of the SPACE board, I sat in on a meeting of this Committee during the late 1982 Atlanta STTI show and was flabbergasted to hear this dialogue.

"We have until March to get this completed. Wolford says if we don't have it done by that time, he will do it for us!"

And now the reason for Wolford's outburst and threat on the lives of my family and I.

Woldford stuck his foot all the way into his appendix on page 69 of his January (1983) SatGuide publication. There, appeared an advertisement for a "4 foot diameter satellite system" which the (Minnesota) creator claimed would provide "100 channels of satellite television." At a time in TVRO history when a 6 foot antenna diameter was controversial, a 4 foot was at best a stretch of the real world. It got much worse. The advertisement included artwork which upon examination was a UHF-TV antenna someone had graphically modified to point 'up into the sky' as if it were pointing at a satellite. Nothing about the illustration suggested a real satellite installation. Woldford and his publication were taken to task by me in the February (1983) edition of CSD, and this probably was the major reason why at STTI's show in March he lost control of his emotions and threatened my life. What the Wolford published advertisement did, going as it did to satellite user-consumer folks, was to plant the erroneous suggestion that a tiny 4

foot dish was all they required to access HBO and the rest of the 'cable TV services'. Nothing could have been further from the truth. In CSD, I questioned Wolford's control over his own publication, accepting as he had an advertisement which was so totally misleading and so clearly likely to create difficulty in the TVRO marketing world. "Why do we need a 8/10/12 foot dish," consumers began to ask of their dealers, based upon this advertisement, "when SatGuide has a firm advertising a (tiny) four foot dish system that will deliver 100 channels of satellite television?" Wolford would claim the advertisement "slipped by his editorial board" but an insider working for the publisher would tell CSD, "We (including Wolford) discussed this advertisement at length and it was Dave's decision to accept it as it appeared." I said so in CSD, citing my inside-of-Wolford source. Wolford had been 'caught' in a net of his own making, and the very thin knowledge he professed to have concerning how the satellite TV technology actually worked was showing.

As for his dictum issued to the SPACE group, Wolford of course was not only not on the SPACE board but he was also not on the SPACE standards committee. Moreover, on a scale of 1 to 10 as a techno-heavyweight he rated about a minus 2. Being well versed and smart about the technology was definitely 'not his thing'. It was just another 'hint' that as a magazine publisher he was going to produce his own magazine in competition to CSD and by yanking on my considerable grasp of the technology, he hoped to further weaken the prestige and impact of my magazine. How well did he do? Not bad, because over the years through early 1983 - and most assuredly thereafter - I managed to piss-off just about everyone in the industry at least one time and so he found many sympathetic ears from the manufacturers who had been 'burnt' by a CSD report. However, the 'Five Year Anniversary' edition of CSD (October 1984) would contain 180 pages for our biggest ever, which when added to CSD/2 (our second publication each month) went over 200 pages for one month. He'd have to do more that 'buy favors' from advertisers to catch up.

National Geographic appeared in Las Vegas at what most will remember as the industry's 'First Really Big Shew' (my compliments to Ed Sullivan). NGS rounded up the 'original pioneers' (Howard, Coleman, Behar, Washburn and others - myself included) and using as a backdrop the 200-plus exhibit antennas set up there, fussed and fumed for several hours getting 'just the right shot'. ABC's Hugh Downs was also on hand with a taping crew, a recent news-stand periodical appropriately titled 'Satellite TV Magazine' was signing up dish dealers

as point-of-sale distribution outlets, and a Salt Lake City man named George Michaels, a 25 year veteran of TV production, was creating a weekly 30 minute satellite distributed program, 'Sat Scene: The Satellite TV Magazine of the Air'. Most of this was positive and exciting and while significant for the new people it introduced to owning their own satellite dish, the cumulative sum was a lightening rod attracting the bricks, bombs and mortar shells of the HBOs of the world.

New manufacturers entering the field were raising start-up capital based upon internal projections of selling between 1,000 and 2,000 of their particular 'widget' each month. LOCOM, a Pennsylvania company, wrapped themselves and their LNA products in the American flag and took dead aim at the import products arriving with Boman and other 'trade labels' from Korea and Japan. A start-up antenna company from northern California, the small town of Redding, discovered a marketing approach that drove their monthly antenna production during the year from 350 antennas to over 4,000 by year's end. If Paraclipse alone could ship 4,000 antennas in 31 days by December, one can but imagine what volume home dishes had reached. The answer, shortly.

And the strange-but-true. CSD for February 1983 published a photograph of a backyard metallic beach umbrella which enthusiast Steve Crowe (Los Angeles; where else!) had 'tipped over so that it faced into the sky' and then equipped with a satellite feed and LNA. He was watching HBO with $19.95 "K-Mart Blue Light Special' umbrella for the antenna! As if Time, Inc. did not already have their hands full.

Actually, Time (Inc.) was busy creating litigation on several fronts, simultaneously. In addition to chasing the piracy SMATV folks and constantly planting news stories in major publications about the 'satellite pirates', through their cable TV operating division they found a new, soft underbelly in the home dish camp. It had to do with 'zoning' at the local (community by community) level.

A satellite dish, especially one 12 foot in diameter, was an 'object of beauty' only to the home where it delivered dozens or hundreds of channels of television. The original bright, shiny aluminum dishes had quickly matured to various shades of brown and green and black in an attempt to make them less visually obvious to the neighborhood. But a 12 foot (or ten foot or 8 foot) 'metallic circle' stuck on a roof, in a front yard or strapped to the side of a house, was difficult to make inconspicuous. If you operated a cable TV system in Arizona (as Time Inc. did) and your local cable system manager began reporting, "satellite dishes are springing up throughout the town," you would certainly be concerned; a satellite dish home was seldom also a cable

TV home, although a percentage would be ex-cable TV.

If attempts to rule home dishes 'illegal' at the Federal level were not bearing fruit, perhaps you could as a cable operator persuade the local town planners to adopt rules and regulations that would slow down or even stop the further proliferation of home dishes. Time (Inc.) and fellow major cable firms held a strategy meeting and worked out a plan.

A booklet was prepared which urged communities to adopt 'zoning' rules that would 'end the eyesore of (large) satellite dishes'. The cable folks argued with some persuasion that as the town received a percentage (from 2 to 5%) of each cable subscriber's monthly payment as a 'franchise fee', when a home installed a satellite dish, the town was losing money. Cable also argued that satellite dishes were dangerous, unsightly, possibly illegal to own and operate, and 'perhaps capable of exposing neighbors to microwave radiation'. At the local town council level, where technology was not understood nor easily sorted between hype and fact, these arguments began to bear fruit.

The cable folks were damned clever in their presentations - what they were urging was a change in local ordinances so that no dish antenna 'larger than 2 (or 3) feet in diameter could be installed lacking either a special permit from the town, and/or a building permit'. By establishing a 'maximum size' that was too small to allow C-band home dishes to work (the performance of the system being a function of the antenna size), they skirted around 'First Amendment' issues (the right to access information). Cable operators urged a twin-application approach, first the applicant had to obtain 'planning approval' for his or her dish and that would or could involve a public hearing and notification of neighbors to allow them to appear in support or opposition to the application. It didn't take much covert behind-the-scene effort from the cable operator to fire up several neighbors in opposition. If by chance the planning permission went through, the next hurdle was the 'building permit' and here safety and construction engineers hired by the community were active in demanding structural integrity for each installation that in the best case might double or even treble the cost of the installation. The proposed antenna had to be 'verified' by a structural engineer with certified engineering tests traceable to obscure and seldom understood 'federal safety standards'. If you manufactured antennas from Arkansas or New Mexico (or anyplace else), your antenna had to be certified by an appropriate engineer before it could even be 'submitted' to the local application process for a construction permit.

CSD exposed this sudden interest in 'health, safety and neighborhood aesthetics' in our February 1983 issue. SPACE was not amused because attorney Brown who felt most comfortable meeting behind closed doors with Senate or House aides wanted as little as possible to do with local politicians in a suburb of Phoenix (and a thousand and one other communities across America). He saw this as a tremendous potential drain on SPACE resources - money he would much rather spend inside the District of Columbia. But out in the real world, the cable folks were wallpapering state cable associations with 'how-to-do-it' handbooks detailing exactly what worked and did not work in 'fighting the local intrusion of satellite dishes into your cable TV marketplace'.

Arizona was a test bed for cable's battlefield. It was also the home of a cable TV pioneer named Bruce Merrill and his cable equipment manufacturing sideline known as Ameco (see 'TELEVISION: The technology that changed our lives' by this author). Merrill had been bright enough in the 1950s to round up cable TV franchises in most of the outlying rural towns (such as Globe, Holbrook, Prescott) and for nearly thirty years 'his towns' had been major sources of cash flow for his various enterprises. All of this made him politically well-connected as well. His rural-town cable systems were more often than not fed only a minimum number of TV channels as more than a generation had passed since he arrived in each community with multiple channel (cable) TV and by 1983 most of his subscribers had even forgotten how to spell 'rooftop antenna'.

Also in Arizona was a fellow who had come into the home dish world through one of the most circuitous pathways of all; this in an industry where entrepreneurs like Randall Odom had leapt from an outdoor toilet to gold plated bathroom fittings in a million dollar home in a year or two. Ed Grotsky was his name.

Grotsky, wife Pam and two daughters lived in a suburb of Phoenix. Prior to his introduction to satellite TV, the Grotskys made a living as follows. Every day they poured over hundreds of newspaper classifieds, browsed shopping center notice boards, listened to local radio swap shops, all searching for people who were advertising 'Must sell now - moving out of town/state!' collections of appliances and furniture. Ed and Pam spent hours every day going from location to location always offering less than the asking price on used household items, searching for folks who were desperate enough to sell their $900 couch set for $100. The items they bought were transported to a rundown warehouse for storage.

Simultaneous to this activity, they also perused the papers for short term 3 and 4 bedroom house rentals with an option to buy. With a couple of these empty homes rented and the option to buy agreements signed, they placed their own advertisements in weekend papers offering "A house full of furniture and/or buy this house and furniture at a discounted price!"

It was an exciting business, just a half-step ahead of the law, turning empty houses into show places using the warehoused furniture and appliances they may have acquired only a day or two prior. For each weekend 'showing', never in the same house twice in a row, they appeared as a distraught couple (with kids), "forced to unload our beautiful furniture (and house) because of ..." followed by a story of some great tragedy. "Pam's mother is dying of cancer;" "Ed's brother has been arrested in Florida and we need to go there tonight!" and so on. The stories were often brilliant because they caused the would-be buyers to immediately feel 'sorry' for the plight of the family.

It worked. A house with perhaps $1,000 in Grotsky-cost furniture would typically turn 3 to 5 times that amount in cold hard cash over a weekend. And if their 'option to buy' could also be 'sold-on' to someone else, another quick thou or two. Typically all cash and all non-reportable.

Jumping ahead to 1986 and the piracy of HBO scrambling that would hit the industry at that time, you can appreciate at this point how Ed Grotsky's 'mind set' might have made him a major participant in the creation of and selling of 'HBO piracy chips'. In due course we will explain how this usually quiet and outwardly reserved man became the most significant player in the HBO scrambling scam. And, at about that time (1986) the Grotsky family would permanently steal out of Phoenix in the dead of night leaving behind no trace of their whereabouts which - no surprise here - would turn out to be Provo!

Returning to Arizona, Grotsky, and local zoning. Grotsky first took the state's problem directly to SPACE's Brown. SPACE was not interested - yet. So Grotsky rounded up approximately 40 Arizona satellite TV dealers and created the first-ever state-based 'TVRO Dealer/Distributor' organization to battle the cable firms. Now - he had Brown's attention with a not so subtle threat of a new hot-issue based competitive trade group.

Grotsky had a mature battle plan on paper including an outline for a 'Community Education Awareness' booklet that would cite pervious court decisions (in favor of allowing people to install antennas of various types in their yards), and argue the position of the home dish

user. The concept was that through an organization there could be 'political power' to combat the cable folks who had chosen to remain 'just below the visibility line' in this fight. Grotsky's hastily organised 'satellite army' would appear at local council hearings, speak out on behalf of 'freedom of choice for TV reception' and do what it could to educate the city council and planning folks. Brown read about all of this in CSD and saw in this plan an opportunity to 'go national' and transfer the work load and risk taking to guys like Grotsky. Arizona would be state # 1 - all Brown needed now were 49 more 'Ed Grotsky' folks and of course SPACE would 'claim the credit'.

Satellite got into 'zoning squabbles' because the industry was for the first time 'invading' cable's sacred territory; inside towns. Previously, when home dish systems were largely being sold to rural folks on farms, the occasional 'townie' that bought one was not a major worry to the cable folks. But then during 1982, as smaller and smaller dish antenna sizes became practical, and 6 footers would appear as a viable commercial product in 1983, the cable operators saw red. Well, green; dollars being drained away from their bank accounts as townies switched from monthly cable fees to 'free TV from the skies'. At the time SPACE should have recognized this as a turning point, pivotal in importance; home dishes now had the full anger and attention of cable TV and when the final shoot out at the TV corral arrived, home dishes would lose this one.

Brown was attention-diverted, however, and SPACE accelerated its attack on Rick Schneringer by using his Las Vegas March show to announce that in 1984, they - the trade association - would hold their own trade show in - you guessed it - Las Vegas. Schneringer responded by announcing his own Las Vegas show dates for 1984 - actually the two could overlap by one day creating a logistics nightmare nobody wanted nor deserved. We'll see how that sorted out; or, did not sort out.

Satellite dealers, the front line force that actually did the yeoman work of promoting, selling, installing and servicing the home dish systems which Paraclipse, LOCOM and the rest of the OEMs depended upon for their volume, were largely a fickle and in 1983 unhappy crew. This encouraged some 'competition' to SPACE and a new group, loosely aligned with George Mitchell's weekly TV show, to announce. As CSD reported, "NASDA is to be a national dealer organization promising everything from insurance programs to educational seminars, sales aids and a monthly newsletter." The typical satellite dealer was poorly financed, depended upon each sale to finance his operations until the next sale, and had no sales plan other than "pay me when I am done

with your system".

Distributors such as Echosphere (the historical roots for today's DISH TV service) were expected to 'finance' dealers for up to 30 days, hoping the dealer did not leave the industry in that period while owing them money. A high percentage did just that; after a sale or two, and a discount price dish system for their own backyard, they went away never to return.

Candee Ergen (nee McAdam, later wife of Charlie of to-be DISH [TV]) during an interview I conducted over the trade show's 'This Morning at SPTS' TV show, expressed the view of most distributors in speaking for Echosphere. "There are really three classes of distributors now. Those who insist they are national in scope although at the present time none have more than one office, those who accept the limits of a single warehouse and claim to be 'regional,' and finally, the dealers who purchase 3 or 10 systems at a time knowing they will themselves use only half of these - putting the rest back on the market at a profit."

Schneringer, for all of his faults, was at least in Las Vegas tapping a rich vein. By charging a very modest fee ($15) for attendees, he was attracting people who were curious enough about home satellite TV to spring some money for a 'business' trip to Las Vegas (did not everyone want an excuse to visit 'the entertainment capitol of the world?'). Most had existing businesses (plumbing shops, electrical contracting, water sprinkler systems, aluminum siding installation and so on) and such a trip could be 'expensed' if they returned home with a handful of sales brochures. Once in Vegas and walking the aisles with 260 exhibition booths, it was very difficult not to be sucked-in by the pricing structures on display. For example, the Boman booth advertised "complete systems for $997" while Schneringer's unpoliced seminar sessions described selling systems, installed, for $2,995 for a half day of 'work', nearly $2,000 in profit. Sell one a day, $10,000 a week or more than $40,000 a month profit - taking Saturday and Sunday off!

There was an 'entry fee' of course - to 'become a dealer' you had to buy a minimum of 3 complete systems. Not a problem - at $997 you'd keep one for yourself, and sell the other two. If you profited $2,000 each on the two sold, that's $4,000 less the $997 you paid for the system installed in your own yard. $3,000 clear and you had a 'free' home dish system!

If this was not a con man shell game, it was in the same family. Boman's low-ball pricing was the weak-heel of the industry in 1983. The firm's Bob Maniachi was a superb salesman with skills that far exceeded the 'amateurs' from Little Rock and Redding. He knew how

to 'massage pricing and payment terms' better than anyone in the industry at the time and his Asian-sources for equipment were backing him in the race.

The turn over in 'new dealers' was quite unmeasureable but very large. Once someone had allowed emotions to overrule their common sense while attending a show, it was 'whip out the check book time' and sign-up for the entry-level of '3 complete systems'. A CSD survey in 1983 found that 60% of those doing this never came back to another show, and furthermore, typically ended up with a system for themselves and one system sold which in a high percentage of cases they could not make function to the satisfaction of the buyer. Son of a gun - there was more to this than hanging aluminum siding on a farm house!

Schneringer of course had no guilt about bringing in new blood, and then milking them for three systems to be shipped to Left Overshoe, Iowa. His shows created sales because they created new-blood traffic - well, at least Las Vegas did in March 1983. Exhibitors made sales and that tempted them to return to the next show, even if it was scheduled for Minneapolis in late June. Three shows a year was probably overly ambitious, and Minneapolis on June 24-25-26 was to turn out badly. But for Schneringer it was the passport to a brand new bright red Ferrari which he had dreamed of from childhood. And, a move for he and Gloria to Las Vegas leaving Oklahoma in a dust cloud. It wasn't exactly 'Grapes of Wrath' revisited in 1983; the Ferrari was a dead give away.

Schneringer in a Ferrari conjures up images of turning your six year old son loose in the front yard with a fully loaded automatic rifle. Back before I moved CSD from his basement to Florida, that 'interim period' between the Coopers moving to the islands and our establishing an office in a corner of an Ed Hegner freight depot receiving area at Fort Lauderdale's Executive Airport, I flew from Provo to Oklahoma no less than once each month. And stayed with the Schneringers in what was initially my house anyhow and later the property of Rick and Gloria. Rick would meet me at the Oklahoma City airport in his Buick Riviera and in the 45 minute drive to rural Guthrie and my/his home unload into my brain all of the events of the industry which he believed I needed to know before sitting down to create the next issue of CSD. As long as he was on Oklahoma's version of a freeway (four lanes, divided with a grass median in the center) it was 'safe' to ride with him. But if he wandered into a town, such as Edmond where he did STTI banking, white knuckles were followed by white every-other-part of your body. Normally Gloria rode with him because allowing him

out on his own was an open invitation for disaster (she was confiding to me they could no longer purchase insurance because he had destroyed so many cars, typically in one-car incidents - driving into trees, sign posts, parked vehicles). To be brief, Rick was easily diverted. Some people can perform two tasks simultaneously, a few as many as four (today we would call it multi-tasking with reference to a computer). For Rick, one was safe but two was totally impossible. If driving was one task and talking was another - your life was in serious jeopardy when you rode with him and he yammered.

Into Edmond, down a four lane divided main drag with a healthy grass median in the middle. The road signs posted 35 miles per hour, Rick is doing under 30 in the right hand lane behind a slower car. He downshifts the Riveria from Automatic to Low, pulls to the left to pass the slower car and floors the gas pedal. It is the last thing I recall until the flashing red lights of an ambulance plus squad car are revolving above my head. I never rode with him again, renting a car with the excuse that I needed to be getting around to see the various magazine production people 'on my own'. Those few who were invited to ride with him in the supercharged Ferrari make my experience seem tame. One actually ended up in the hospital - with a heart attack.

Life in the fast lane was emblematic of Schneringer's new found self-importance. From a marginal Houston health food store with a sizeable debt relating to a subdivision he had foolishly begun in central Texas to 'king of the satellite world showmen' in less than three years was a heady experience for a man of modest skills. As the money poured in, the Ferrari was paid for, he began to have fears about his own mortality - immortality in fact. Perhaps it had roots in his Houston health food store experience and some magic belief he may have harbored concerning 'vitamin supplements'. Whatever the roots, once in Vegas living in an impressive showman-class house, with the red racer parked in the four car garage, his attention turned to 'staying alive'. And that in turn led him to Switzerland where he discovered a doctor who believed that by injecting ground up intestines of freshly slaughtered lambs into your blood stream a person nearing the end of their natural life would gain another decade or more. The doctor - if indeed he was one - also prescribed a handful of health food supplements daily and Schneringe admitted to being a $300-a-day 'junkie'. The price of immortality was obviously not small.

Which drove an already unstable person to do some quite illogical things when faced with a business challenge. And he was facing the biggest one of his life - SPACE's board had now formalized plans to hold

two shows annually - Las Vegas in February - March and 'someplace in the east' (Orlando in 1983) during October - November. CSD spent many pages discussing all of this, primarily because SPACE was facing new legislative threats and by becoming a trade show operator there was the opportunity the trade association could somehow afford to pay the costs of protecting itself from outside forces (read HBO). And as the original STT plan I created involved three shows per year, geographically spread, the first challenge for Schneringer was, 'what did he have left?', if SPACE pre-empted him in the spring and again in the fall, 'to support his $300-a -day habit'. The answer, for 1983 already cast in stone, was Minneapolis late in June. He needed 'one more' to tide him over and in a desperation move chose Nashville's Grand Old Opry facility over the Labor Day Weekend; the first week in September. It may have been the luckiest decision of his not always charmed life.

To further complicate matters, non-satellite shows such as the CES (Consumer Electronics Show) held twice annually (Chicago in early June, Las Vegas in January) were expanding and adding home dish coverage. And some regional shows, New England for example, were springing up as well. A CSD published study revealed that a company such as RL Drake would lose 9 working weeks each year for any personnel who were 'assigned show booth duty'; the sum of preparing to go, going, being there, tearing down the booth and going home - times the total number of shows each year. In the June 1983 issue, it was my reasoned conclusion that the industry was unlikely to ever return to three 'major shows' per year and I urged Schneringer to concentrate on creating one mammoth all-family, all-fun show once each year, in the summer, midway between SPACE spring and SPACE fall. And although I disliked David Wolford both as a person and as a businessman, I further urged in print that Wolford and Schneringer combine their respective skills to pull off such a 'celebatory' annual gathering. Wolford's SatGuide had the reach to bring in a few thousand home dish owners and to attract some show-biz personalities to 'entertain' a carnival/circus event crowd. Schneringer had a $300-a-day habit and would therefore do his part to make the event a success. Alas, Schneringer decided he could 'beat SPACE' by holding more, not fewer, shows. Which pit him against the very industry he was trying to service and left him supported only by the middle and lower level manufacturers who were malcontents just like him because they too were not part of the SPACE 'inner circle'.

SPACE was dead serious about two shows a year, and ultimately they invited Rick Schneringer to attend a special meeting with the asso-

ciation's board of directors. It could not have gone more against Schneringer and he had nobody but himself to blame. First, he chose to appear without benefit of counsel - his legendary 'battery of attorneys' was no place to be seen. Appearing alone, he lost his temper in front of the 30+ Board members, people whom on an individual basis he mostly respected and from whom he sought support. But for Bob Behar he reserved some very vindictive highly racial comments about Behar's Cuban heritage. And then to make certain he would never be invited to another SPACE Board meeting, he turned on SPACE Counsel and VP Rick Brown and pointed out to the assembled Board that Brown was a 'jew'. Indeed he was, as was Behar, although Schneringer was not conscious of Behar's religion. Prior to his emotional outburst there had been a thin majority on the SPACE Board who felt the industry 'owed' him special consideration for what might happen if SPACE went in a major way into the 'satellite show business'. After his tirade about 'spics' and 'jews' he lost all but a tiny handful of SPACE Board supporters. Schneringer's show days were now numbered. Weeks after STTI had announced dates (the end of June) for what he was calling the 'Canadian-American Show' in Minneapolis, the Government of Canada did something quite spectacular by deciding, formally, that it was no longer 'illegal nor prohibited' to be viewing US satellite television in Canada. Prior to the March 1 announcement, the Canadian Mounties were locating and in some cases confiscating satellite dish systems, especially those located at commercial locations (taverns, motels and even condominiums). Now, Communications Minster Francis Fox issued a broad declaratory decision which suddenly threw open the flood gates in Canada; one CSD reader, a (previously) clandestine dealer for satellite systems in Toronto, reported 60 sales the first day following the announcement, almost exclusively from taverns and clubs! The repercussions from this official government sanctioning would last 19 years during which time an estimated 900,000 home dish systems would be installed throughout the country to receive American TV programming (in 2002 Canada's high court would revisit the subject and overturn lower court decisions which Fox had relied upon in issuing his 1983 proclamation).

Down in Oklahoma, Schneringer apparently yawned and swallowed another handful of vitamin supplements, not realizing that he had just been handed a major promotion for his previously named 'Can(ada)-Am(erica) Satellite Show'. Rather than making an effort inside of Canada to promote his near-border location and the positive aspects of the ruling, it was 'business as usual' for the ex-health food

store proprietor which meant he was more focused on his problems with SPACE than with his next big event. Which turned out to be a small event as a result. I recall urging him to obtain a list of Canadian speakers, to promote the event through Canadian newspapers, to focus on how American suppliers could and should prepare themselves for a market that was numerically much smaller than the USA but where, because of the official ruling, it was totally legal to have a satellite dish and watch anything they wished - including HBO. My suggestions fell on deaf (and dumb) ears and blind eyes. All he knew to do was 'trade' on-program speaking opportunities for the purchase of booth space. It was not his finest hour; not only was he 'not an educator' but his handling of the Minneapolis show suggested he was also 'not educated'.

The USA programmers of course reacted with considerable indignity. "How could a government officially sanction the 'theft' of TV programming by its citizens?" HBO and others asked. Canada's cable operators were more than indignant; they were precluded from offering American satellite signals such as CNN and WTBS while the 'SMATV' and home dish folks were suddenly free to sell-sell-sell without legal opposition. It would not be long before the Canadian bureaucracy began to allow some cable systems in remote areas to become 'affiliates' for services such as WTBS, but under no circumstances were they going to be authorized for HBO and other higher-priced services.

What all of this did in 1983 was to create a runaway marketplace in Canada which, when added to the brisk USA selling field, further complicated the business of meeting demand with supply. A handful of small-capacity OEMs were in Canada, primarily turning out antennas which were difficult to ship (and 'hide' during transport to Canada) from the south. David Brough, the 'Pirate of Pickle Lake', had fortuitously formed Commander Satellite Systems in Ontario and was capable of producing a range of antennas in at least the hundreds-per-month category. He was on the 'right' side of the border; his antennas did not have to clear a 'border inspection' to be sold..

Between the depressed value of the Canadian dollar, import duties and special 'tariffs', what cost $100 in America cost upwards of $155 in Canadian dollars; a 55% 'penalty' for Canadians. Satellite receivers and LNAs could be 'hidden under the seat of a Toyota' after being procured in Buffalo or Detroit but hiding an antenna from Canadian Customs was quite another challenge. And there were some strange side effects to all of this. Microwave Associates, for example, was actually manufacturing LNAs inside of Canada, having received a tax holiday for creating a facility there. But the entire production had to be exported

(to the USA) to retain the tax benefits so first the devices were assembled in Ontario, shipped across the border to Buffalo, then unpacked and returned to Canada hidden in crevices of private cars!

If Canada had thrown in the regulatory towel, other countries in the Caribbean, Central and South America were now playing hard ball with satellite equipment. CSD was filled with reports in 1983 detailing the double-jeopardy an American (or Canadian) faced if he was foolish enough to land on Barbados or Cayman or Aruba with a satellite dish system as 'excess baggage'. In just one year, satellite terminals had been elevated from, "What is that???" to "OK - give me one for our (Governor) (El Presidente) (leader) and then you can bring one in here for somebody else!" One CSD reader had a 20 foot terminal tied up in customs in the eastern Caribbean for six months while he tried to 'talk it through'. No dice - he had two choices of which neither was much of a choice. "Leave it here and don't ever come back" (as in abandoning the complete system to the delight of the custom's people there), or, "pay us 300% of its US value in American cash and then you can have it released by customs." CSD got cracking on these reports and with some help from readers I tracked down more than a dozen 'incidents' which seemed quite out of the ordinary; antennas and systems stuck in some customs' office awaiting who-knew-what final disposition. One of particular interest was uncovered in Ecuador. This was one of those geographic regions where American (and Canadian) signals were not supposed to 'reach' - but did, provided you installed a very large antenna. Anyone reading CSD knew this - we blabbed the detail in a very open manner, not cognizant that in so doing we were creating a scenario that would by 1983 come back to haunt the young industry.

Enter the US representative to Intelsat, Comsat. This firm owned approximately a quarter of Intelsat at the time, and they were up to their eyeballs in legal problems at the FCC. Because WTBS/CNN and others did in fact travel beyond the coastal line of the United States, broadcasters, would-be cable systems and SMATV firms in such locations as Bermuda, Cayman, Haiti and so on were chomping at the bit to be 'plugged in', legally. Some, like Jamaica's government TV system, simply installed a dish and threw the switch to US programming. Others, perhaps concerned about 'doing it correctly', had sent representatives to the America FCC requesting 'official permission' to be connected via satellite. Under Intelsat rules, a service such as WTBS was supposed to go to Comsat as the US representative of Intelsat and file a formal 'request for service' through an Intelsat satellite. There were several

reasons why this was not practical.

First, Intelsat charged around ten times the fee per transponder as the American domestic satellites so suddenly the programmer (WTBS) was facing huge amounts of money per annum to serve a relatively small number of users in places such as Bermuda and Cayman. In a word, it was not economical. But transponder economics alone would not decide this issue. Reason two: Intelsat satellites were designed for 'wide area coverage' which meant that their actual signal to Cayman or Bermuda was pitifully weak - so weak that rather than a 6 meter $10,000 antenna, the user would have to spend several hundred thousand dollars for an 11 meter + antenna. And that was also not economic. Comsat told the American FCC, "That's the way it is - take it or leave it." What Comsat was really afraid of was if a satellite licensed to serve only users in the USA, or Canada, was approved to serve users in Bermuda, Cayman or Haiti, the 'exclusive legal rights' held by Intelsat for these 'foreign, offshore areas' would be eroded; nobody fights so hard as someone fearing loss of a monopoly. They figured they had enough political clout to keep the FCC at bay for years, if not forever.

They were wrong. The FCC decided that WTBS could be legally sent to Bermuda, Cayman, Haiti and other places, using the RCA 'domestic American' satellites. Comsat went into a panic mode. Yes, several dozen copies of CSD went to Comsat personnel including some at the very top. And here they read about the gallivanting tests of Miami's Bob Behar and many others who had during 1982 'opened up for American reception' regions as far south as Brazil, Bolivia, and Ecuador. Comsat, an instrument created by the US Congress in the 60s, may have lost a round with the FCC but they were not without other 'resources'. In May 1983, the US Department of Commerce created a special task force calling itself 'Operation Exodus'. Relying on a 1968 law, obscure and buried in fine print, there was section 1520/A which said before you could export," Radio relay communication equipment designed for use at frequencies exceeding 960 MHz, and components, accessories and subassemblies therefore ...", an Export License was required. What Comsat had managed to do, with the assistance of the Department of Commerce, was to create a fence around America for all satellite TV equipment. If Bob Behar was going to insist on hauling dishes and satellite receivers to Surinam, he would only do so after being subjected to a 45 - 60 day 'delay' and an onerous set of forms, special fees, bureaucratic roadblocks and general red tape.

Operation Exodus fielded several dozen agents at US Government expense who first visited everyone (including Behar) who had ever

been mentioned in CSD as an 'exporter' of satellite technology beyond America's shores. They even went into Mexico, proper, to haul back a shipment that had already passed over the border to the south. The monetary fines for avoiding the bureaucracy, if they caught you, was the same as the value of the shipment; up to US$60,000 in several of Behar's shipments. When they caught a shipment in transit but still inside the USA, without the attached 'Export License', the first thing the agents did was impound it, and head to the originator of the shipment to demand a cash bond - $11,000, in lieu of instant confiscation. The bond remained in their Government bank account until all of the paperwork was completed, sometimes much longer.

This was clearly harassment, designed to instantly stop the flow of satellite equipment outside of the United States to locations which Comsat / Intelsat had declared 'their own territory'. There were some back doors in this. Without an export license, the equipment could be shipped into Canada and then from there to any destination worldwide. But the only advantage to this double-shipping routine was that the equipment could 'go now' rather than 45 to 60 days later after being subjected to the red tape routine, while the disadvantage was the double shipping and handling costs.

Comsat was a quasi-agency of the United States Government. In Ecuador, the local government owned and operated telephone company was - like Comsat - also a 'member' of Intelsat. So when a 20 foot test antenna first went there and attracted publicity locally, and a second larger antenna was known to be heading for Quito as well, the local telephone company on advice from Intelsat simply pulled the same trick 'on the other end' which had the effect of tying up the giant antenna indefinitely in Ecuadorian customs. This was not the only card being played by Comsat.

American President Ronald Reagan was at the core of this sudden interest in satellite TV systems, something called (the) 'Caribbean Basin Economic Recovery Act' was on Reagan's (1983) agenda. It would work like this. If island countries in the Caribbean would create 'duty free zones' and allow American manufacturing firms to set up shop in them, the products made there using labor that might earn as much as US$1 an hour (often much less) could be exported back to the United States without an import duty. For shirt and shoe makers in Haiti, circuit board assembly in Barbados, shoe string manufacturing in Dominica it all seemed like a sweet deal, courtesy of Uncle Sam. But there were some strings attached and they had nothing to do with shoe laces.

Under HR 7397, the President (Senior Reagan) was given significant latitude in naming which countries would be granted such opportunities. For example if his loyal (Republican) buddy in California wanted to assemble circuit boards on Barbados, for example, first the Barbados government would have to agree to create the tax free zone. Then the US government would or could advance 'loans' to the circuit board maker to create a building and set up shop there. And Reagan would declare all the circuit boards 'import duty free'. Instant profits for the circuit board maker, big time donations to the Republican party, and gainful employment for 30 or 300 ladies on Barbados. Pretty simple - except.

The US Government wanted something more from Barbados (or any of up to 30 potential island-candidates). Built into HR 7397 were six categories of 'behavior' by the candidate country which would possibly preclude the President from extending them these benefits. One was Communism - if the country was declared by the US Government to be Communist (Cuba) or heading for Communism (Grenada), the President might not declare them as a beneficiary.

Five of these six built-in exclusions could, however, be waived by the President if, "it will be in the national economic or security interests of the United States." Number six could not be waived; any country engaging in this particular activity would never-never-never be granted agreement to establish tax-free no-import-duty zones under HR 7397.

"A nation cannot be a beneficiary of the act if it engages, through Government owned entities, in the broadcast of US copyrighted material, including films or television material without the express consent of the owners."

The 'Congressional notes' going along with HR 7397 explained it this way:

"This provision is intended to ensure that the rights of US copyright owners are protected against the increasingly frequent practice of foreign governments intercepting satellite transmissions, or otherwise broadcasting copyright materials. This practice jeopardizes the substantial foreign revenues received by such copyright owners and it will disqualify such a country from the benefits of duty-free concessions."

Even the President could not 'waive' this restriction; although he could waive the restriction if a country was Communist! Was this really happening? So soon after the first satellite dishes were hauled into the Caribbean by entrepreneurs such as Bob Behar? You bet! The Jamaican government run television station, as one minor example, routinely rebroadcast the 'CBS Evening News' along with other CBS shows that

were quite properly being transmitted via satellite from the mainland to Puerto Rico. They had no permission to do so, of course.

In CSD for March (1983) I wrote rather pointedly:

"If you find it strange that the Motion Picture Association of America has a lobby that is so strong that it reaches all the way into Congress, think about it some more. If you find it strange that a nation borrowing CBS Evening News is not a candidate for Caribbean Initiative Act benefits, but a nation that throws Americans in jail, confiscates their land, and refuses to return criminals to the United States after they have fled to the nation in question ... is still able to qualify, well, that is how powerful the MPAA lobby is! President Reagan is making two fundamental mistakes here. Number one, he is allowing old ties to the motion picture industry to creep into his foreign policy process. This may be a good way to treat old friends, but it makes for lousy foreign relations. Number two, somebody needs to point out to the President that allowing the free flow into Jamaica and Haiti of US programming is the best thing American foreign policy has going for it! A people who do not have enough to eat, who are fed highly edited and restricted diets of television fare can only be enlightened by being exposed to American television. We don't have the best television in the world, but we do have a great deal of it and virtually all of it is a 'promotion' for the free enterprise system. People who aspire to a better life need role models and images to dream with. American television, good, bad or indifferent, provides an extremely effective role model for an aspiring people. A single hour of good American television can do more to encourage a poor people to struggle for a better life than millions of dollars in US taxpayer funded surplus foods. And best of all, it doesn't cost the American taxpayer one thin dime!

"Somebody hasn't thought this out very well. We need the widespread exposure of America in the Caribbean. We need to reach the teeming millions there with examples of America at work, and play. Congress blew it in 1982. The MPAA, not noted for its concern for humanity, never considered that it was far better for them to 'give' and be paid for it than to 'take' and lose the American exposure in the Caribbean. 1983 is another year; hopefully somebody will rethink this one before it becomes law."

CSD for May revealed a much more sinister plot that properly embarrassed a number of influential folks in the American cable industry. The scene is the Dominican Republic, sharing half of the land mass of Hispanola with Haiti. There, a new cable TV system was turned on late in 1982 and sure enough, in the programming guide which

CSD in turn reprinted were such USA stalwarts as WTBS, USA Network, CNN, ESPN, WGN, Nickeledeon, Arts, MTV and the corker of them all - yup, HBO! Now, the fact that a Santo Domingo cable system was 'pirating' USA bred and fed cable programming might not have been terribly shocking on the surface. But CSD dug further and discovered who had provided the money for, and technology behind, the cable system. It traced to an American cable company headquartered in the Rocky Mountain states. Ooops.

So here were guys who were quite legitimately 'customers' of WTBS/ESPN/ARTS and HBO in say Utah and Idaho and Montana but going 800 miles south-east of Miami into a foreign country and providing the same channels through a foreign located cable system. Grand theft cable?

Not quite. It was more complicated than that, as CSD revealed. Not wishing to have their WTBS/ESPN/ARTS/HBO placed in jeopardy for their stateside cable systems, these clever folks were 'adding' the Santo Domingo subscriber number to their monthly reporting (and payments) for each of the service being used. CSD reported:

"This keeps the big time (American) cable operator square with HBO, but it hardly satisfies the screams from the MPAA (Motion Picture Association of America) originating from the Santo Domingo theater operators who are increasingly playing movies to empty halls. It will be interesting to see how this big-time cable operator keeps his books if and when the Santo Domingo system grows to say 200,000 subscribers; how do you 'hide' 200,000 foreign subscriber homes 'inside of' an American 40,000 subscription base in Utah, Montana and Idaho? I guess they employ creative bookkeeping!"

Of course HBO was not 'licensed' by its movie providers to be distributed in the Dominican Republic (or any other Caribbean location) so as you can imagine when this report appeared in CSD, lawyers lined up all over to collect their representation fees.

The quality and sensitivity of the 'home dish' market equipment charged ahead with eye-opening vigor throughout 1983. Some, perhaps much, of this was fallout from new, more powerful and 'wider-beam-coverage' US (and Canadian) satellites recently launched. In the eastern Caribbean, these improvements were most noticeable. From Bob Behar's early 1981 experiments with 20 foot size dishes in the 'lesser Antilles' to January 1983, many of those like Behar who were battling to get export licenses were now finding much smaller dish sizes (down to 3 meters or ten feet) were commercially useful. A new name in the Eastern Caribbean marketplace emerged, largely through his exposure

in CSD for March 1983. Peter Sutro, partner Bill Heavener, of New Jersey based Patmar Technologies were approaching this chain of islands (The Leeward and Windward groups; Saba and St. Martin south to Grenada) in a time consuming but carefully thought out pattern of test and evaluation. It all began because Heavener, his mind far removed from satellite TV while on vacation at a time-share located on St. Martin, stumbled across a local plan to 'include live American television' in a 140 apartment vacation-target complex. Time-share units for sale to Americans had struck gold in the islands, and with every American buyer came at least the naive expectation they would find Ted Koppel and Merv Griffin gracing the 21 inch screens that came with each unit. The original developer scheme was to erect huge fringe-area antennas on local hill and mountain peaks hoping to beat the odds with something approaching 'reliable' reception from Puerto Rico, more than 200 miles distant. It was a 'fool's game'. But then so too was satellite TV, most believed.

What Sutro quickly worked out was that if you picked your island carefully, where the local government was very much inclined to go along with time-share development projects, you could side-step the many headaches which Bob Behar and others were running into. If the island wanted development, as St. Martin did at the time, then anything and everything that would make the projects 'go' was permissible; local law not being an obstacle even if it did nominally limit such satellite TV activity.

Sutro's CSD reports opened many eyes. By shipping down from New Jersey a succession of dish antennas ranging from ten to 17 feet in diameter, creating a test location and using both his own and Heavener's considerable skills in 'fringe area satellite reception', Sutro worked out that even the smallest (ten foot) antenna had a place provided one also hand-picked the satellite channels to be used by a development project. The bottom line was multifaceted. First, smaller (ten foot) dish antennas could be shipped to locations where larger antennas could not. Many of the lesser-Antilles had very limited sea or air service capabilities and it was often not possible to ship equipment beyond a certain size onto such an island. Second, Sutro warned those with similar aspirations to be cautious of the local law, the arrangements a country might have in place with Intelsat, and, how 'currency exchange controls' might allow you to be paid for your efforts only to later discover that the 'local funds' could not be converted to American currency to carry back home with you!

Much closer to home, on April 26 (1983) ABC's World News

Tonight devoted four minutes to a saber rattling anti-piracy piece which lumped satellite viewers with MDS (low power, wireless cable microwave) viewers into a two-word naughty description: 'Video Pirates' (no, I did not coin the term for this book!). ABC had attended the STTI Las Vegas show, assigning Lynn Shearer to create some videotape of the event for what was to be an expose piece. It was no coincidence that ABC had taken the first steps into cable programming by forming an alliance with ESPN, the sports channel. And that ESPN was one of the more popular channels 'being pirated'. The essence of the 'news' piece was simply this - "The time has come for the laws to catch up with the technology." And that is an exact quote of Lynn's close. Does that sound like an 'editorial position', to you? It certainly did to me! And I reacted through CSD by advising everyone in the industry to be extremely cautious about exposing themselves and their businesses to any TV network 'news' team. I wrote, "ABC wants to do what it can to slow down, or stop, home TVRO sales and they are starting this campaign now because (ESPN is a part) of their own pocketbook, not because they are good journalists covering a story."

I had good reason for this new cautionary approach; ET or Entertainment Tonight. From that fateful Halloween eve, in 1978, when the CBS Evening News with Walter Cronkite's crew visited my rural Oklahoma home and 30,000,000 American TV sets were introduced to home satellite TV for the very first time, the Cooper family had maintained an 'approach with caution' creed to 'visiting TV news teams'. CBS had been followed in 1979 by Japan's NHK who spent three days with a five person crew poking Fujicon lenses into our bathrooms and Susan's crock pots, hiring helicopters to buzz our ham radio and satellite dishes, and carefully rehearsing where we walked into a room, what we said, and how we said it. Ten times; twenty times, to the point of total boredom and some frustration. Throughout 1982 CSD was read in some unusual office cubicles and one of those happened to be a field producer for 'ET: Entertainment Tonight'. As this individual read and reread my reports on bringing first-time television to the 'unlisted country named the Turks & Caicos Islands' a story line developed in his mind. "Can we come down for a few days to do a report?," begged Nashville quartered Don Hunt. "In addition to producing for ET, I own a satellite dish, am an avid follower of CSD, and have been a licensed ham radio operator for twenty years." He had all of the magic phrases memorized and over dinner that night I casually mentioned it to Susan and the kids. I anticipated raucous laughter followed by "Over my dead body!" from Susan. I was totally

disarmed when she thought about it a few minutes and then urged me to say, "yes."

Negotiation time. Our family efforts to coalesce the usually rude-to-one-another elements in the country's tourist housing industry had not produced much more than meetings where everyone in attendance vented their various forms of anger, then agreement at the end, followed by each returning to his or her respective abodes and doing exactly what they said they would not do during the meeting. The end result was we had a 'Tourism Association' mostly in name only and other than some travel magazine articles I had written and coerced into print, not very much else going for us. So returning to Don Hunt in the country music capital of the world, we talked it through.

"I would like air-time for ET viewers to see how great our beaches and lifestyle is here," was my first demand. Don agreed.

"I want time for our Chief Minister to be interviewed about what the Turks & Caicos has to offer," came next. Don became terribly honest in his response which was a good sign to me of his integrity (in a sense, my demands had been designed to 'test' his integrity; I expected no miracles or new rule books but I was hoping for truthfulness).

"I am the field creator, not the segment editor. I can shoot what we agree should be shot, but the final edit will be done in California by someone I have no control over and the total length of the piece or pieces will be dictated by 'commercial' conditions at the time of broadcast." With that caveat, he agreed.

That was it. We made no demand for money (which perhaps we should have been entitled to receive), no requests that they bring bottles of champagne or Alaskan Salmon for us to munch during the shooting. I did miss one important pre-agreement, which would return to haunt the Coopers for decades thereafter.

ET sent down a crew of five; the field producer Don Hunt, Hollywood based producer Barry Hunt, on-air personality Scott Osborne, a 'go-fer' and a lady who seemed intent upon interviewing every person on Provo to learn their innermost secrets, and, "Oh by the way, what kind of folks are the Coopers???"

It would amount to ET spending something greater than $25,000 for what ultimately ended up being around 4 edited and massaged minutes of airtime sent via satellite 'live' to 120 terrestrial TV stations for local scheduling. And they would repeat the piece in 'ET: The Week' which some stations ran on Saturday or Sunday. CSD would carry letters months after the initial airing from readers as far away as South Africa, where the piece also ran.

Much like the Japanese, ET followed me in my daily routine on day one and they caught some very typical Island reaction to our TV programming. Example: 'Fast Eddie', a Haitian who had smuggled himself to Provo years prior and married a local girl to cement his belonger rights to stay, ran a restaurant. WIV television was prominently displayed there and when I walked in around noon on day-one to go over some upcoming TV advertising copy he jumped me with both feet.

"You promised us no bad language TV!" Fast Eddie began. Since we could hardly preview every TV show and every word of dialogue in advance my response was a stammered, "What are you talking about???" and he responded by reaching for the TV remote control and cranking up the sound - for the first time I realized we had walked in on a shining TV screen with no sound. Sure enough, there it was. A satellite movie channel we never (ever) carried on West Indies Video was showing a 'R-rated' movie. Naturally this exchange, my embarrassment, and Fast Eddie's indignation were all captured on videotape and Hollywood person Barry Simon, in charge of the effort, was rubbing his hands together and almost peeing in his pants because he had 'a good one' on tape.

That morning Hunt had asked me with camera and tape rolling to do an explanatory description of our 'WIV Master Control' facility - where we received several dozen satellite programming channels and selected the particular service to broadcast at that time of day. Apparently, during the show and tell I, or son Kevin or even Don Hunt, had punched up on a 'switcher' device a satellite receiver which immediately went 'to air' - without our knowledge. Angie Dickinson, partially clothed and defending her virtue, had been delighting some residents of Provo for more than an hour before we stopped by Fast Eddie's. And the restaurateur was not one of those delighted.

Day two was spent in and about the studio as we 'dummied' a segment from a make-believe 'Provo News: Tonight' with local newscaster-trainee Wendall Swan. Wendall, later to become a crackerjack local politico and ultimately to leave Provo to obtain his degree in law in London (and to return), had a casual "this is the way I am - this is the way it was today" approach to being on WIV camera several nights per week. Normally daughter Tasha ran one camera, I another as well as a half serious attempt at being floor director, son Kevin the control room to select the 'hot camera' and rolling videotape inserts. Hollywood-Simon wanted wife Susan in on the action and had her 'stationed' as floor director. About which she knew (and wanted to

know) absolutely nothing. What would end up being 7 seconds on ET took 21 'shoots' and countless hours of rehearsals. Wendall's usual approach was to write the news copy, lay it down on our studio desk and then ad-libbing the actual transmitted audio with occasional glances at his prepared news copy on the desk. He was pretty good at it but Simon wanted him better; much better. I never quite understood why he decided this was his calling in life - to become a mentor for a black man in the Caribbean who had no aspirations whatsoever to become Max Robinson. But he persisted and this ate up the majority of a single day.

Wendall. "If this is how they do it in the states, I want to change occupations right now!" I quite agreed with him. And just in case you think all of those fluff-free 'sound and video bites' you see on ET or any of the other US 'reality TV shows' are unrehearsed, well - think again; 21 'takes' for 7 seconds on air.

The real trouble began on day three. Chief Minister Norman Saunders was flying over from Grand Turk to be interviewed by Osborne, and I dashed to the airport to pick him up. Daughter Tasha decided watching how they create a 'professional TV show was more important than attending home school that day and she was tagging along as personality Scott Osborne walked on the white sandy beach in front of our home practicing and then recording what they planned would ultimately be on ET his opening introduction to West Indies Video on Provo. As I returned to "the Cooper compound" with CM Saunders, Susan came running towards me. She gave her usual warm hug to the Chief Minister and dragged me away to the side.

"Scott is saying 'You are a pirate ... the last of the pirates'!" It seems Tasha had heard and by now after 7 takes had memorized Scott's introduction which boiled down to, "ET has discovered the fellow who is leading a world-wide attack on the integrity of copyrighted television and we found him here on this delightful Caribbean island where he is stealing American television and rebroadcasting it to the natives."

I located Scott and Simon demanding an explanation. It was obvious to me they had come to Provo with a preconception of 'how the story' would go together and nothing they had done up to this point had changed their mind. Simon came close, in defense, to admitting that ET had approved the expense of the trip to Provo for a five person crew, "based upon our research which said you were stealing American TV." I grabbed his arm and took him to meet Chief Minister Saunders who was being outfitted in the veranda of our home with a wireless microphone and being served something cool to drink by Susan.

"Norman, these guys think I am stealing American TV down here and then reselling it to the natives. Can you set them straight?"

He was very impressive and none of it went to tape because camera person Hunt was too flabbergasted to think to turn on his tripod mounted Sony camera.

"The Turks and Caicos are not a party to any international copyright convention," the CM began. "Mr Cooper cannot be breaking a US law here because this is not America and furthermore, as we have no law of any kind concerning copyright, he cannot be breaking any local law either. What he has done and continues to do daily is to make it possible for the people of this country to join the 20th century and to become partners in a single-world where all people have the same access to the same information and entertainment without regard to where they live or what their economic means might be."

Simon and Osborne were quite embarrassed - geuninely embarrassed - to be 'guests' on Provo, to be talking on camera with the national elected leader of a country, who so obviously not only knew his law but also was extremely supportive of what 'the Coopers' were doing for his country. They promised to 'reshoot the opening' and shortly after the CM's segment was taped, proceeded to do just that. Now Osborne was walking the beach and he was saying, "These are some of the most remote islands in the western hemisphere. There is no agriculture here, no industry. But Provo does have something that might surprise you - Provo has plenty of television!"

ET's original plan, back when program owner Paramount had approved the trip and expenditure based upon their conception about my piracy, was to hold the segment for a mid-March air date and to promote it with advertising in TV GUIDE. When the 'rules changed', largely because Tasha had skipped school for the day to monitor Scott's opening dialogue on our beach, their plans changed as well. It would air 'quickly' and sure enough it did only weeks after the late January shooting session.

Out of it came accolades for the promotional value of an American TV show than went into some 30,000,000 homes to introduce 99.9% of these homes to the Turks and Caicos Islands for the very first time. Don Hunt, quite unknown to his 'masters' at ET and Paramount, snuck into our production facility on his last night on Provo and ran off for me a set of 'dub tapes' - everything they had shot while there. If they had known he was doing this, it would have been the end of his affiliation with Paramount and probably end his career as a much-travelled freelance video journalist. I would 'reward' him in 18 months with

another assignment which would outlast the momentary flash-value of the ET visit by several decades. And out of this 'experience' I developed a new 'sixth sense' about the 'integrity' of those who would approach me for an opportunity to 'send journalists down' to write about or tape what we were doing. In short order, I was saying, 'no-thank-you' to Time Magazine and many others. The March (1983) edition of CSD had a very impressive front cover - Chief Minister Saunders, 'personality' Scott Osborne, and field producer Don Hunt standing in front of one of David Johnson's 12 foot Paraclipse satellite dishes in our Provo compound, while editorially I warned the industry to "beware of (TV) journalists bearing video cameras!"

CSD continued to 'discover' new areas of the world where American (and other) satellite reception was possible and several reports early in 1983 refined the known information about such excursions. Englishman Steve Birkill reported on the viewing opportunities in Europe (January 1983) while CSD reporters from throughout the Caribbean and South America were creating detailed analysis of how new-to-air satellite services from Brazil, Peru, Ecuador, Venezuela, Mexico, and Argentina were available over a wide area. One of the most unusual was a four channel service transmitted from within (northern) Mexico, ostensibly for use by Mexican cable system operators. The three national (Mexican) networks plus an 'ad-hoc' channel consisting of a mixture of (USA, English speaking) ABC-CBS-NBC programming from San Diego was being satellite relayed and as it provided wide area coverage using an Intelsat satellite; dish sales followed. Intelsat, to 'avoid' legal claims that it was providing 'desirable programming' to 'pirate receivers' created a new technique; the sound portion of the TV programming was sent on a separate transponder (channel) which established that full reception of picture and sound would require two receivers. Accordingly, that inspired Andy Hatfield to create a special receiver that allowed separate tuning of the sound and picture, 'laughing all the way to the bank' while collecting a $1,500 premium ($4,500 total) for these 'Intelsat service' receivers. We reported this in some detail in CSD and of course nobody at Intelsat saw the 'humor' in what had been done by the clever Mr. Hatfield to go end-around their attempt at 'securing' their transmissions.

The bottom line was that by early in 1983, a 6 meter/20 foot (ADM, Hero) dish was able to deliver a multiplicity of Spanish language channels to any central or South American Spanish speaking region for costs that were not over one-tenth of what Intelsat wanted for the same service. We - the TVRO industry - were not making any 'friends' at

Comsat/Intelsat but out where it mattered, as cable TV pioneer Bill Daniels had proclaimed two decades earlier, "Nobody loves us but the viewers." CSD told readers what equipment to use, how to tune-it-in, and then how to 'redistribute' the received services to a multitude of under served viewers. Indeed, we had few friends 'in high places'.

CSD, for 1983, had named antenna manufacturer Jamie Gowen of ADM and receiver manufacturer Andy Hatfield of Avcom of Virginia as the 'CO-recipients' of the industry's 'Man of the Year' award. Both had grown from backyard card table operations into multimillionaires in a two short years primarily because they focused on service to the customer. Gowen routinely followed his antennas, like Hero's Behar, into out of the way points on the globe to see how they 'really worked' in a real-world environment. And he backed up his antennas with service second to none. Hatfield was on a big dollar roll, the only receiver manufacturer to hold onto $2,000-$3,000 per-receiver pricing at a time when Boman was offering them for $399 and below. He got these big dollars from customers who stood in line to be 'next' because his receivers did things nobody else had thought of doing - and he backed up each one with his own personal commitment of performance - or else. Both had visited my home base on Provo late in 1982, with their respective wives, and while neither had purchased land there (a mistake both would later regret given the times ten to times 100 growth in land values on the island), each would have a particular interest in what we were doing in the Caribbean. Little did I know, at the time, that wife Susan and I would break up (1984) and I would later remarry Andy's then-wife Patricia, in 1986.

What had begun as a tongue-in-cheek suggestion in CSD in mid-1982 grew into a real event late in 1982; the Provo Satellite Retreat. With all of the messiness surrounding the industry's trade shows, and the open sore between SPACE and Rick Schneringer, I had comically suggested a gathering on Provo for late in 1982, "by insiders with special experience and knowledge to share." Several dozen readers took the suggestion seriously and by September (1982) my Fort Lauderdale office manager Carol Graba was fielding calls from people who wanted to 'sign up to attend.' Carol (without an 'e' as in Carole) was the most dedicated person I have ever known, and that includes end of life, final wife Gay who is the most honest and brightest human being I have ever known. Carol came to me via a circuitous route. My first office manager, hired because she was introduced to me by Ed Hegner at a time when I was taking serious steps to vacate Rick Schneringer's basement CSD office for a Fort Lauderdale facility, was

named Beth Geiger. Beth had a son who was married to a Scottish immigrant and she in turn had a sister named Carol. Stay with me - it gets less complicated.

Beth found dealing with folks all over the world daunting, the rather strict hours confining and urged me to take on Carol as a part-time fill-in when Beth had better things to do. Carol quickly grew into a replacement for Beth and I was 100% better off for the exchange. Carol had some baggage. She was in the United States illegally, having arrived under a short-term visa from Scotland to visit her sister (the one married to Beth's son) and having 'forgotten' to leave. As children, Carol and sister had been abandoned to a foster home and then an orphanage while still toddlers by a mother who fancied the bottle more than motherhood so she had some additional baggage on top of her illegal status.

It was very easy to 'fall in love with Carol' - a non-sexual statement - because her attitude was one of total devotion to what we were trying to do. I arranged for her to qualify for a Florida driver's license, then provided her with a 'company car' and the mandatory Florida insurance, even engineered a 'voter registration card' so she had at least the persona of being a 'US citizen'. In return she worked seven days a week, hours without limit, doing anything and everything that I required. She personally kept the thousands of subscriptions properly, dealt with as many as 200 advertisers each month and their always last-minute submitted advertising copy, our relationship with typesetters and the actual printer, the mailing service that took the completed CSDs (by then twice each month) from the printer to the mails - if it needed doing, she did it. Nothing was too hard, nothing took too long, and when Susan and I decided to call it quits, Carol took over being a surrogate 'mom'for son Kevin and daughter Tasha who by then (1984) were at their private school north of Fort Lauderdale.

Because she was the primary 'mechanic' behind CSD going out twice every month, Carol developed her own 'fan club' of loyal followers. I adopted Carol as a surrogate mom for the kids and all-but-sexual 'wife' because like a wife, CSD would have collapsed in total disarray without her. When I was in Fort Lauderdale, we worked together, ate together without respect to what day of the week it might be or how late (or early) the hour.

"Bob, I believe it is time to replace our subscriber files with computer files," she began one day. The truth be told, all subscribers were on antiquated 3 x 5 file cards and hardly an example of efficiency. In 1983, personal computers were very new and only my son Kevin was

conversant in how they worked. I sent Kevin to Fort Lauderdale for a couple of days and when he returned to Provo, he and Carol had purchased an Apple system which would serve us well for the remaining years of CSD; pretty heady stuff for a 13 year old but he, like Carol, handled it perfectly. Carol then proceeded to enroll herself in a multi-week nightly cram course to learn how to operate the system for not only our subscriber rolls but advertising and billing files as well. In the five years she 'served' me, I never once had reason to question anything she did or any decision she made - of which she was forced to make several each hour. Any and everyone in the industry who dealt with her - hundreds did each month - would have jumped at the opportunity to hire her away from me including that Darth Vader of the satellite world, David Wolford. They all tried - often with offers of twice the handsome salary she was paid by CSD but in each case she would laugh at the offer when telling me about it. "I'm here for the duration," said she - in a delightful Scottish brogue that never failed to capture the heart and mind of the person on the other end of the telephone connection. Carole with an "e?" My first wife, Carole Cooper nee Buchanan. "Carole with an 'e' has called" Ms Graba would report in her matter of fact way. "The children (first marriage son Britt and daughter Stephanie) need more money."

The 'Provo Retreat' was one of those, "you wouldn't suggest this if you were sober," concepts. I believed that out of the thousands in the TVRO industry, there were a (admittedly, small) handful of bright folks who saw not the problems of today but rather the wider challenges of tomorrow and after. What I wanted to do was to bring them to our island 'retreat' for up to a week, isolate them from their own office telephones and daily business problems, and then encourage each participant to eschew the problems and solutions he saw for the coming year or two. Around 20 finally appeared, with equipment hauled down in Ed Hegner's Beechcraft planes, to be quartered at the infamous Island Princess. If I had hand picked the attendees, I could not have selected a more diverse group. Included were manufacturers (David McLaskey and two key employees from St Louis based receiver manufacturer Intersat; they would make big headlines later in 1983), Jan Spisar from Canada (he was the top design engineer for Canadian cable TV equipment manufacturer Delta-Benco-Cascade), Rich Potts of dish mover/actuator manufacturer Tel VI, Tom Limpicke of antenna manufacturer Satellite Innovations, David Johnson of soon-to-be the top seller of satellite antennas Paraclipse (Redding, California), Bill Miller from Florida distributor Promar, Roy Orvis who operated a cable

TV system in Dryden, Ontario (Canada), Tom Harrington who would later in the year co-author a book with me ("The Hidden Signals on Satellite") and who owned a distributorship in Ohio, newbie dealer David Lyman (Utah) and a fellow who was destined to become one of my dearest industry friends, Peter Sutro of Patmar Technologies (New Jersey). Most came with family, stretching the limits of Ed Hegner's 'shuttle Beechcraft' link from Fort Lauderdale to the limit - especially when folks like Limpicke and Johnson brought with them as 'excess baggage' complete 12 foot diameter satellite antennas! It was one of the more memorable weeks of my life to that point. Turks and Caicos Chief Minister Norman Saunders, an always enthusiastic participant in most anything I asked, addressed a group banquet and announced a new 'tax-free enclave' program which predated US President Ronald Reagan's tax-free program for Caribbean-Initiative nations, hoping to attract someone from the group to pioneer manufacturing from the islands. Local entrepreneur Art Butterfield addressed another evening meal to explain how it was possible to take 'USA expertise and turn big profits' by using the offshore banking facilities of the Turks and Caicos. It didn't get much better than having personal invitations from the country's leading businessman and the top political figure.

David McClaskey of Intersat would later suggest that the group be given a name and eventually Canadian Jon Spisar coined 'ROBS' - the Royal Order of Bloodsuckers. Out of the week long visit came a number of industry-shaping scenarios. Sutro had arranged to bring down a ten foot satellite antenna manufactured by Harris - 'the' Harris who even in 1982 was so huge that they could have bought out every single firm operating in the home dish industry with 'office change'. CSD had reported on the new Harris antenna with a sense of, "Can we believe these claims???" which the major firm was making for their antenna. It would turn out, after extensive testing on Provo, the antenna was good but not nearly as good as their hype was claiming. Naturally the published test results from Provo, in CSD, would ensure that Harris would never - ever - advertise in CSD. The bigger the firm, the more 'pissed off' they were when reacting to negative publicity. I would survive without their advertising dollars and Wolford was welcome to them.

David Johnson's Paraclipse antenna, a 12 foot mesh dish, on the other hand defied logic. Provo had a large antenna collection by late in 1982, including several of 20 foot size. Johnson and Bill Miller and Harrington had quietly labored for a couple of days putting together

the Hegner-transported 12 foot medium - priced Paraclipse and getting it just right. Johnson had first brought a prototype antenna from his Redding (California) facility to Omaha in 1981 and there Taylor Howard, in one of his rare benevolent moments, had given Johnson a hour's critique of what was wrong with the antenna. Johnson left Omaha and started over, following Howard's advice to a 'T'. Now, in late 1982, he was back for a shoot-out - prepared to allow us with video tape running and cameras snapping 35mm exposures to compare it against every single antenna in the facility. It was a pretty daring thing to do as the 16 and 20 footers on concrete pads only feet away were all top performers. CSD for January 1983 reported:

"There was genuine puzzlement when the 12 foot Paraclipse outperformed not only a 16 foot ($12,000 cost) AFC/Micdroyne dish which has been the mainstay WIV antenna for over two years, but also outdid the original Hero 20 foot surface that was rescereened and re-proofed (with improved performance noted) this past summer."

So powerful was the CSD influence that before 1983 would end, Paraclipse would skyrocket into becoming the number one supplier of satellite antennas in the world; more than 4,000 per month by December. Moreover, this tremendous growth would propel firm leader Johnson into the Presidency of SPACE.

The 'Provo Retreat' CSD report outlined not just what was 'new' and 'hot' but more importantly, it went into significant detail to reveal the text of the 'panel discussions' held throughout the week. If the Schneringer (and SPACE) trade shows had 'lost the plot' of monitoring the growth of the industry, the 'Retreat' had found it was still alive and viable. Peter Sutro summed it up as CSD reported:

"I planned to leave early, Friday. There was no way I could leave before it was over. I never learned so much, so painlessly, in such a short period of time in all of my life. It was a wonderful experience."

ROBS would remain an 'insider's insider group' for the balance of the TVRO industry 'days' (through 1986) and one of the prominent spots on my 'trophy wall' includes a handsome plaque presented to me at a later gathering. Inscribed, it reads:

"Father of an industry. Presented to Bob Cooper on this day, March 15, 1983.

The respected title of Charter Member of ROBS - The Royal Order of Bloodsuckers."

A 'bloodsucker?' You had to be there to appreciate the nuance.

Early in 1983 HBO announced their tentative decision to contract with M-A Com (Microwave Associates) for their now five-year-ago-

promised encryption system. It would be two more years in actually happening and I was amused with the scenario that was unfolding. M-A Com had gone on what I termed in CSD, 'a Pac-Man phase', gobbling up every firm in sight to make them bigger and more of a 'one-stop-shop' for anything and everything relating to satellite system hardware. And I was not that many years removed from spending days and nights with every person of importance there including the Chairman of the Board. So it didn't take me long to work out what was really happening here. I wrote in CSD:

"M-A Com is one of those brilliant companies that seems to be on the leading edge of everything. They virtually invented two-sided selling. You may wonder what that is. I'll tell you. First you get cozy with a new customer base; say the police of the nation. Then you design for them some nifty hand and vehicle mounted microwave speed radar systems. The police love the boxes; they can nab speeders and rake in the bucks and pretty soon every police department has to have a radar package or two or 200. M-A makes lots of bucks turning out the specialised parts for these devices.

"That's the first 'side' of the sale.

"Then you (M-A) sit down and design some nifty microwave diodes that receive the police radar signals and you take these diodes and design a radar detection machine. Now you have a new series of products, one that feeds off the first. You sell the police the radars. Then you sell the would-be speeders and truckers the radar detectors. M-A gets rich.

"And then, to keep technology moving, when business slows down because the market is saturated, you return to the police again and you say, 'Look ... everyone and his brother is buying radar detectors. Your radar is not as effective as it once was. So we have worked long and hard and we have developed a new radar. A new radar that all of those millions of radar detectors out there can't receive'.

"The police, older but no wiser, fall for it. They trade in their old radars or throw them in the scrap heap, and spend new big bucks on brand new radars that work in a new frequency band. Now the millions of truckers and speeders out there with 10 GHz microwave detectors are defenseless because all of the new radar machines have moved to the new frequency of 24 GHz.

"You are ahead of me. No fair skipping lines!

"Yup. Then M-A announces a new series of microwave diodes that designers can use to build 24 GHz radar detectors! Now everyone out there with an old fashioned 10 GHz radar detector has to consider

scrapping it and trading in for a new two-band radar detectors; one that works at 10 GHz and 24 GHz, just to be doubly safe.

"Business in M-A microwave diodes booms. M-A gets rich. Again. And that's the 'second side' of the sale."

So when HBO announced they had narrowed their choice in satellite TV scrambling systems down to something M-A Com was calling 'Linkabit', I was extremely curious how long it would take the high tech firm to run around the end of the HBO defensive line and create a new gadget for those who wanted to bust the HBO system. I would not have very long to wait. You, reading this, will have to wait a while however because as we grind through month to month vignettes it is still a few thousand words down the page. Let's paint the scenario here, however.

Every scrambling system has at least one 'back door'; a way 'into the system' created by the software (computer language) creator(s) which allows someone with the right 'road map' to get 'into the system' through an 'unmarked and secret entry door'. The (original) Linkabit system had several 'back doors' and for a price that would not seem unreasonable by 1986, instructions to crawl inside would be 'for sale' on the black market. It is a curious reflection on human nature that someone being paid a very large sum of money to 'build a security (scrambling) system' for a firm such as M-A Com would think ahead and cleverly 'hide' in their software (computer language) 'unauthorized points of entry' which would be capable of being employed by 'pirates' after the system was launched. Very curious indeed - but totally SOP ('standard operating practice').

HBO's decision to favor M-A-Com's Linkabit was first revealed in the UK - an unusual location for a new scrambling technology designed primarily for the American satellite TV world. Jump ahead to early September 1983 and join me as a small but devoted group of fellow travelers are riding on a train between London and Birmingham, England. Jamie (and Linda) Gowen from ADM Antennas, Andy (and Patricia) Hatfield from Avcom of Virginia, Art (and Rosita) Butterfield from Providenciales and Susan and I are having an 'English experience'. Separately from our group, Peter Drake (R.L. Drake), Bob Luly, Bob Taggart (Chaparral), Peter Sutro (Patmar Technologies) and a handful of others were making their way to 'CAST '83', mis-billed as the 'first cable and satellite show for Europe'.

I had been approached by a British entrepreneur one year prior to consider 'bringing to Europe' the American TVRO industry in a show that would, they promised, 'be everything which SPTS once was'. In

other words, before Rick Schneringer turned American satellite shows into cattle auctions. Our English (and European) subscribers to CSD had watched with some dismay as the Bob Behars and Andy Hatfields of the world were reshaping the entire concept of 'television' one continent at a time. Europe had been excluded primarily because of two factors. First, the 'American 4 GHz' world had not developed in Europe. Because of reason number two. The European nations were largely controlled by state owned and operated telephone companies and the last thing these state-owned enterprises wanted happening in their territory was Ted Turner running around bars and clubs and hotels offering CNN to their nationals.

Cable had barely begun in Europe, outside of Holland and to a lesser extent Switzerland, and without cable there was no overt business reason to import television programming for satellite delivery. CNN, with my help, would solve this one but not in 1983. So what you had there 'on satellite' in September 1983 was a very tiny selection of 'feeds' going between Europe and the USA (and the reverse), a Saudi Arabian channel or two, and the newly launched American Armed Forces Radio and TV Service (AFRTS). None of this was especially appealing to Europeans and CAST '83 which had been promoted continent-wide as a 'CABLE and SATELLITE' show ended up (much to our disappointment) being a CABLE and satellite event. Of 100 booths (not a bad first effort) I counted 15 with anything whatsoever to do with satellite and most of these were simply plugged into some demonstration satellite dish antennas from out on the parking lot.

Jamie Gowen had shipped one of his 20 foot dish antennas to the show and with the assistance of my Provo neighbor Art Butterfield, Andy Hatfield and myself plus a small number of keen but inept British enthusiasts the dish had been assembled next to a much more expensive Scientific Atlanta 24 foot antenna. Typical of Birmingham in September, the weather was wet, grey and our own spirits aside, dank.

Bob Behar may have had success making a (Hero) 6 meter dish work in Africa, the Middle East and for Fernando Marcos, and Jamie Gowen may of had a better six meter antenna (as CSD had reported), but on a paved parking lot at Birmingham's National Exhibition Centre the best skills were not working for us. The Saudi images were noisy, the AFRTS was worse than that and we were perplexed as to why. English genius Steve Birkill and his new business partner Peter Gray had elected CAST '83 to introduce the first in a line of never-to-be successful Birkill receivers and if there was ever a combination that was going to make 'it work', they (less only Bob Behar) were in one spot at the same

time. Peter Gray went into a panic mode and reached Patmar's Peter Sutro, at home in New Jersey. "Do you have a really good LNA - one with a superb low noise figure?" he demanded. Sutro did - the logic being that what we needed was additional receiver sensitivity which a one-of-a-kind LNA might provide. Sutro hopped on the first flight he could get out of Newark to Gatwick. He was carrying something very rare - a Harris (brand) LNA with a claimed noise figure of 65 degrees. Sutro arrived to find me 'camped' on a ladder with my head stuck inside of the feed system on Jamie Gowen's dish. The new LNA helped - but not much; certainly not enough to create impressive pictures for the attendees at the show. Later we would work out why. The primary target, the American AFRTS, was already being 'pirated' by a Dutch cable system and in response Intelsat at the instruction of the US Military had turned the power down to make it very unlikely anything less than a ten meter (32.75 foot) diameter antenna would recover the transmission. Moreover, AFRTS read CSD and they were aware of our CAST '83 effort and wanted to discourage further 'pirating' of their service. So as the Dutch cable system operator would later advise me, "a few days before CAST '83 the power was turned down and then a few days after it came back up again." We were 'bit' by our own openness and foolish pride by announcing in CSD what our plans were in advance. We would learn to be more circumspect, but not soon.

In a nutshell, the British were waiting - for the launch of a new commercial 12 GHz (Ku band) satellite which they hoped would reach individual homes with satellite dishes in the 20 inch size range. Jamie's 20 foot monster dish, plus SA's huge 24 footer, were obviously on steroids. Europeans found our 'American approach' to satellite TV amusing but not likely to proliferate when the average backyard was smaller than a postage stamp and local 'commons regulations' prohibited folks from installing even a ceramic bird bath until they had obtained the written permission of all neighbors. "We are not in Kansas," observed (American) Bob Luly to me.

Indeed, we were not. A 8 foot dish in Wichita would deliver 100 crystal clear channels of every imaginable configuration. A twenty foot ADM was delivering a below-standard AFRTS channel and a handful of either non-English speaking or only on the air a few hours a day channels. It was not America's finest hour by any stretch of the imagination.

"These channels have absolutely no commercial value for the average person," related Peter Gray who with TVRO God Steve Birkill had formed Satellite TV Antenna Systems, Ltd. in the idealistic hope

that importing 'foreign' television into the UK would a business create. "After you sell a terminal or two to a Saudi Embassy group and another one or two to a wealthy Middle Eastern prince who maintains a home in the south of the UK, who else wants to watch Saudi Arabia (or a degraded American AFRTS)? Nobody, that's who."

But it was at Birmingham that we (the intrepid American tour group) were first exposed to Linkabit by M-A Com. Seeing this, first hand, was worth the trip, by itself. HBO had delayed any public showing in the USA, and M-A Com had agreed. It is possible they moved it offshore to avoid my scrutiny, although our appearance in Birmingham had been well telegraphed in advance through CSD. More likely, perhaps they thought by showing it here, first, they could encourage me to say nice things about it with a minimum of other 'US input'. I did not disappoint them.

But there was some clever subterfuge at work. M-A Com had created 'Linkabit' in several technology layers - or so we later worked out. Layer number one was quite spectacular. It not only totally destroyed the video, it turned the sound into a raspy noise with no intelligible content. This is the 'version' they displayed in Birmingham, although it was done with a cleverly manipulated video tape and not in actual live performance. I was terribly impressed by several aspects of it of which the apparent ability to recover a 'perfect' picture (and sound) when the original signal was too weak to produce a perfect unscrambled signal was the most important. What M-A Com employee (later to become a HBO employee) George Gilbert neglected to tell me was that the "Linkabit system you are watching in our Birmingham exhibit booth, on videotape, is not the system that HBO has elected to purchase." On a scale of Chevrolet Corvairs and Cadillac El Dorados, this was the latter. HBO was signed up for the Corvair. So when CSD for November (1983) reported in excruciating detail on the Birmingham exhibit and Linkabit, I was playing right into their hands with a description of a Cadillac system which would only find customers in the ABC (TV networks) of the world; it was, in a two word phrase, 'too expensive', for cable TV.

But - it was impressive, as photographs appearing in CSD so clearly demonstrated. I should have been suspicious why Gilbert was so anxious to have me fully understand what the system did and actually encouraged me to take photos which he knew would find their way to an early edition of CSD. He wanted me, as the 'bible' of home dishes, to 'scare the crap out of SPACE, the home dish industry, and anyone who thought for a moment they might 'bust the system' for piracy use'.

I did exactly as they hoped and planned, much to my later regret.

Linkabit, as displayed in Birmingham, on videotape, did something truly spectacular. It took a weak, 'below threshold' satellite signal which was too marginal to produce a clear picture when unencrypted, and made it perfect'; the equivalent of turning the Birmingham noise-riddled American AFRTS channel into a perfect quality picture simply by 'adding' scrambling. Everyone from America who saw it walked away shaking their heads in some disbelief; me included. It was 'OK' to scramble, but to scramble and greatly improve the quality of the received image after descrambling was akin to black magic. What Gilbert failed to divulge was that the decoders for this version of Linkabit would cost in excess of $15,000 each - even in 100,000 production lots. As it would turn out, HBO had not tumbled to this 'small footnote' either. They had 'signed on' with M-A Com by believing that this was the $1,500 per descrambler version. That small amount of 'failure to disclose' would cost the HBO scrambling project at least 12 months in additional implementation time; something nobody inside of HBO realized at the time.

American television in Europe? Not on C-band (4 GHz) and not with anything that was available as programming in the fall of 1983. The Linkabit display was a covert effort to influence the American industry through my (totally anticipated) CSD report and for once I was gullible enough to say what they expected I would report. I would 'get even' but that would be several years down the road. For now, it was everything 'HBO hoped for' as some Time Inc. upper echelon execs would chortle to me a year later over an imported bottle of Scotch whiskey shared in one of their walnut panelled NYC offices. I could be fooled once, twice was less likely.

The British were playing it very 'distant' with respect to receiving American television programming via satellite. The 'Home Office Radio Regulatory Department' was on hand in Birmingham to enforce a rule that any reception, beyond 'test, development and demonstration purposes', was illegal. We were on the edge of that skirt with our ADM and S-A antenna reception, but barely. As proof of this, there were (in 1983) 25 American military bases in the UK, a holdover from the end of World War Two. Every one of these bases had been denied 'Home Office' approval to install a suitable (10m) dish for reception of AFRTS service via satellite, even if the received signal would be distributed via cable solely 'on the military base' with zero opportunity for off-base locations to receive the AFRTS service. The Brits were not about to allow any importation of satellite signals even for their military base

pals from the USA. Nothing about this suggested even a glimmer of hope that the American home TVRO industry was about to invade England as a commercial venture.

As negative as all of this seemed, nothing we found in Europe was going to deny Ted Turner his dream; a group of channels, distributed via satellite, world-wide. In CSD for April 1983, I wrote:

"Turner, in 1978, was a nasty, threatening guy to the established cable community. They were not yet ready for a 'wild man' telling them their industry was going to bury traditional broadcasting. Turner had arranged to get his (Atlanta based) WTCG (now WTBS) on satellite in 1976; 'Cable's Super Station.' He was the first, and between broadcasters who thought him crazy and the big time cable people who didn't understand his free wheeling antics, he was not nearly as well received then as he is now. In 1978, it fell upon me to create an award for Turner, in recognition that his 'pioneering' efforts to get a good independent broadcast signal on satellite (and thence to cable) was a milestone in the progress of the cable industry. At an annual cable show I used to run, we arranged to present Ted with the award and he in turn asked for a few minutes to tell everyone how thankful he was (1) to be alive, (2) be a part of a dynamic, growing industry, and (3), be sober. Not necessarily in that sequence."

In fact, he was just a pinch below being 'wasted' but that is another story. Turner sober is amusing; Turner wasted is hilarious.

"'We are all going to get rich ... filthy rich ... together,'" he shouted from the pulpit. There was a murmur of approval from the crowd of more than 700 cable operators and their families.

"'We are going to bury those networks .... their days are numbered. Someday they will beg us to take over their old fashioned, antiquated systems,'" he shouted again while raising his right arm in a victory salute.

For twenty minutes he carried on. When finished, every man, woman and child in the crowd would have followed him into the gates of Hell, confident they would all pass through unharmed. To wild applause he held the award I created on behalf of CATA (the Community Antenna Television Association) high above his head (the first award the cable industry had ever given the man; dozens more would follow) and then headed for the bar where somebody (me) had thoughtfully arranged for his WTBS to be piped in from a satellite dish so he could immerse himself in his (Atlanta) Braves game for the evening.

In SatFACTS I reported:

"Last fall (November 1982) I wrote in these pages about Turner's plight in getting CNN or something like CNN into Europe, for cable system use there. In the same story, even the same paragraph, I also talked about the possibility that CBS was attempting to package a special European feed channel of their own; to take CBS Network television 'world-wide'. At that time, I knew about negotiations underway between Turner and CBS. I very much wished to tie the two together at that point, but decided that anything in print at that time might jeopardize Turner's negotiations. Like any good member of 'The Turner Army', I refrained from telling what I knew. Turner commands that kind of loyalty."

I wrote about this in April because word had leaked out that Turner was making a stock market share rush on CBS; the network created by William S. Paley and his cigar fortune. CBS competitor ABC was already in bed with Westinghouse at this point, producing a Turner competitor called SNC - (the) Satellite News Channel. SNC, and the determined-to-own CBS run by Turner, would fail. But Turner's dream of becoming a world-media tycoon would not die and during 1983-84 he and his capable staff would refine it into a business plan that at one point deeply involved me and a handful of others from the 'home TVRO' industry. We'll investigate how this came down all in the proper sequence.

A quiet evolution was underway in the satellite hardware field. It had begun in 1976 when cable TV's first ten (33 foot) and eleven (36 foot) meter receiving dishes tuned in to HBO. Now, 7 years down the road, people with under US$1,000 invested were watching the same HBO with 2 meter (six foot) dishes. In 1976, indeed until October 1979, it was 'illegal' to own a satellite reception terminal (of any size) to receive programming from any source in the USA. It was also impossible to obtain a license for a terminal (antenna + electronics) unless you were a commercial user agreeing in advance of licensing to abide by some Bell Telephone promulgated 'restrictions' adopted in the 1960s.

Washington attorneys Steve Effros and Rick Brown, working on behalf of CATA (the Community Antenna Television Association), and I, through CATJ magazine, were successful in late 1979 in having those restrictions lifted. The FCC, in ruling on this matter (October, 1979) in effect said, "We no longer require licenses and no longer have technical requirements demanding that dish antennas be of a certain size. If you elect to do this, without a license and without agreeing to our minimum size requirements, you have no recourse through the FCC

if your installation receives interference from other users of the radio spectrum."

There was one footnote aspect of the ruling which would dangle like a threatening sword hanging above the head of the home dish industry for nearly a decade; "from 'whom' do you have permission to view or listen to these satellite transmissions?" In approving no-FCC-license operation during October 1979, the FCC chose to mention but not deal with this aspect of 'home dish terminals'. They realized that firms such as HBO had 'property rights' in their programming, that people without a license and without following FCC technical guidelines might actually 'tune-in' these transmissions without (HBO) permission. What they said, at the time, was this. "If you are a programmer and you do not wish unlicensed terminals to receive your signal, it is your responsibility to scramble the signal." In other words, send it in such a way that only those to whom you wished the transmission sent would receive it.

Technically, scrambling was a new art with significant technical challenges. And perfecting this new art delayed first by a year and then ultimately by six years the 'grey area period' during which the technology improved and the prices plummeted downward for home dish systems, the sale of which was in all truthfulness, 'driven by the free/no-charge availability of HBO (and other cable TV programmers)'.

HBO would have scrambled in 1979, 1980 - 1981 at the latest - if they had a scrambling technology that suited their requirements. Nobody, not even I, could accurately foretell the technological developments in home systems which would see complete systems drop from their initial $100,000 pricing to $25,000, then $2,500 and, by 1983, under $1,000. And until 1983, 1984 in fact, this was an American industry - home grown, home conceived, home funded. The profits were staggering, even at $1,000. A satellite receiver, selling for upwards of $399, cost less than $30 in parts to manufacture by 1983. For manufacturers such as Andy Hatfield (Avcom of Virginia), his 'top-of-the-line' $2,995 receivers were going out the door with under $200 in labor and parts invested. Mass production was of course part of the answer and by 1983 the numbers were large enough to attract Korean, Japanese, Hong Kong electronic firms who had the resources to take Hatfield's $200 cost out of Richmond and duplicate the exact receiver for under $40 in the Far East.

It was a very attractive, high profit, industry. But it was skating on very thin ice; the FCC's unanswered observation that, "If (HBO) wishes to prevent reception of their service, they should scramble." Just one

formal ruling, even a veiled warning, from the FCC could have and probably would have stopped this runaway marketing of home dish systems dead in the water. The industry, down deep, knew they were pushing the limits of legality.

For every new effort on the part of the programmers and satellite operators to 'restrict viewing' by unauthorized terminals, the home dish industry created a technology answer. A home dish system costs 'too much?' Fine, make the dish antenna smaller and compensate for the smaller dish size with a more sensitive receiver. International satellites are weak in power and they send the sound (audio) portion on a second channel/transponder (thereby creating 'silent pictures' for viewers)? Fine, design receivers with the ability to tune in both channels, one for the picture and another for the sound, independently.

Make satellite dish antennas illegal in a specific town, unless they are below a size limit (2 feet) which even with the best technology was not large enough to produce HBO? Fine, design backyard 'Gazebos' which from the neighbor's yard appear to be miniature 'greenhouses' but in fact are merely 'covers' to disguise what is "growing" inside - an 8 foot satellite dish system!

1983 was 'technology-run-amuck' year. The industry was attracting firms who specialised in 'cheap and dirty', other firms that specialised in 'expensive and clever," still others who were designing and building equipment for the motels/hotels (on and offshore) that wanted to provide HBO (et al) to their clients.

From its introduction in 1981 at SPTS San Jose, the David Barker 'image reject mixer' technique had propelled California manufacturer KLM into a lead position in the manufacture of low-cost receivers. Barker's approach was the ultimate in simplicity and because it required no specialised 'microwave quality parts' it could be duplicated for a very minimum manufacturer outlay in raw material costs. Dozens of firms, without regard to Barker's possible proprietary interests (which he had sold to KLM), were fishing in the same stream. Perhaps 60% of all receivers sold in 1982 - 1983 were patterned after the Barker design.

The Barker technique required a Low Noise Amplifier at the antenna, followed by an antenna (or indoor) mounted 'single conversion mixer'. One of the negatives with this approach was that some channels appeared twice on the dial, and if you had an installation with two or more receivers connected to the same dish antenna, they interfered with each other.

This was not insurmountable. Avcom of Virginia created filters to reduce the interference levels but this added $60 or more cost to the

installation. Tens of thousands were sold, to the personal enrichment of Andy and Pat Hatfield. Avcom elected to follow a non-Barker technique which ultimately would prove to be the best of all; it was called BDC for Block Down Conversion.

BDC systems came into their own late in 1982. For commercial installations with two or more simultaneously operated receivers, BDC allowed one antenna, one LNA, and one 'block' down converter to drive as many separate receivers as the user wished to install. The original concept here had first been demonstrated in 1978 by Steve Richey, the individual who must be given credit for building the very first 'private terminal receiver' (with Canadian business partner Rod Wheeler).

It was during 1983 that the industry's basic system design, which had prevailed from 1979, changed in favor of BDC. CSD for April (1983) explained why this technology was 'better' and from this point onward the industry headed off in a new direction. The effects were significant and far reaching. Firms such as LOCOM, the Pennsylvania start-up that was specializing in LNAs, found itself selling to a diminished market where LNAs would ultimately be replaced with LNBs. What was this? A marriage of the 'amplifier' function with the 'frequency conversion' task of the 'BDC' - one box, mounted right at the antenna feed, which did both. Cheaper, better performing, quicker to install. Everything which HBO dreaded to read in Coop's Satellite Digest.

The limits of technology were a cause for major concern at the programmer level. Just when it appeared to the programmers that home dish systems had shot-their-wad, something new surfaced and the technology tumble began anew. Home dish systems were clearly 'the enemy', but the target kept moving, changing shape and size. Truly mercurial.

Early in 1983, Keith Anderson resurfaced. The David MacZura and Steve Birkill fiasco was now past and Anderson had used local resources in South Dakota to create his own manufacturing facility in Black Hawk (a suburb of Rapid City). If a public demonstration of his SCDN system was compromised in Omaha at SPTS '81, his factory-fresh equipment in 1983 was not going to suffer that fate. And, if rebroacasting the entire satellite 'band' through the air at a lower frequency was illegal in the United States (and Canada) - it was - he would design his system so that one home in a neighborhood could install a dish and using small diameter coaxial cable additional homes could be connected giving each home access to any of the satellite channels the dish was receiving. Think of it as a 'community satellite antenna system'

(a satellite version of CATV) wherein all of the channels being distributed home to home were coming from satellite rather than terrestrial TV transmitters. Others had chewed around the edges of this design for several years, none had worked out the fine tuning as well as Keith and within a few months several would-be competitors would 'copy' his designs and offer their own versions of one-dish, many-home, systems.

This was especially concerning to the programmers because they were trying to find some legal way to shut down the motels, hotels, trailer parks and other locations where a dish was producing 'pirated' access to one, five or perhaps eight satellite channels to transient clients. Now Anderson had a 24 channel system and the price was incredibly low-ball making sale of the systems less than strenuous exercise for limited-knowledge sales types. For a period of two years or so, Anderson would finally strike gold in the TV world, ramping up to several thousand of his specialised receivers per month within the first year of manufacture.

The industry was now attracting firms with 'household names' and the trade association SPACE completely and utterly failed to pickup on this. In the final battle still looming in the HBO distance, 'friends' of the industry - those with money invested - would count in the final showdown. To mention a few - Beach Craft, Inc., the folks who built boats of every size, shape and description, was one of these, joining marine electronics giant Lowrance that had become a supplier in 1982. Comtech Telecommunications, a division of satellite operator Intelsat, was another building receivers and associated equipment. RSI's Locom Division was a specially created (for home dish sales) division of an old-line military communications supplier with hundreds of millions of dollars in annual sales. International Video Corporation had acquired the stock and assets of Arkansas pioneer StarView and their advertising was built around instant visual recognition of celebrities - Johnny Cash, for example, featured prominently in their advertising. DX Antenna, not a name most consumers recognized, was Japan's first serious entry into home dish system sales and for the technically inclined, very impressive to 'have on board.' Equally impressive, Swedish consumer electronics giant and leading European manufacturer Luxor was in the game. Winegard and Channel Master, the two major names in home TV reception antennas and equipment were in up to their corporate noses.

In his defense, SPACE's titular head Richard L. Brown was one of the more clever attorneys practicing before the FCC in the 80s and

90s. Using an inside circle of advisors approach, he was able to keep his finger on the pulse of the industry although most nobody knew that much of what he said and did was shaped by a 'shadow cabinet' of industry CEOs (for example, Peter Dalton of KLM, Jim Rothbarth of Satellite Technology Services, Sandy Wirth of Echo Communications). His second level down advisors were folks like Taylor Howard and Bob Behar, 'names' he could and would call upon to bail SPACE out of a difficult spot. Dalton and Rothbarth existed 'behind the curtain', out of sight and unknown. Howard and Behar were the up-front 'on stage' fellows, each famous in their own area of expertise, who would spend five minutes being coached by Brown before a major presentation and then regurgitate everything he told them in front of TV cameras and the press. Dalton always seemed to be 'running from' something, hiding behind others and walking away from anything that would cause a spotlight to focus on him. Mike (Mick) Staal, the 'M' in KLM, would 15 years after this (1983) point in time recount to me how Dalton had turned their small but financially successful ("and fun!") ham radio equipment business into a nightmare ("I was not allowed to go to trade shows to see what others were doing; Dalton was paranoid that somebody would talk me into leaving the company!"). Rothbarth reminded many of the 'Scarecrow' in 'Alice in Wonderland' by his looks and demeanor. His past was always cast in shadows and with the very rare outburst confined to the behind-closed-doors of a SPACE Board meeting, he mostly wandered the show aisles gawking and musing his own private thoughts. Sandy ('Gus') Wirth was an old friend of mine, going back to the early 1960s when he was a major distributor of Citizens Band radio products and I published CB Horizons - that young industry's first trade magazine. Sandy has a passion for being 'inside' of events and perhaps being close to Rick Brown was his answer to this craving.

This trio of insiders did more to shape SPACE policy than any Board of Directors that ever sat. It is doubtful any of the three would have been 'elected' to the SPACE board had democratic elections ever been staged but all were able to 'buy their way on' and into Brown's 'confidence chamber' by simply sending SPACE big checks every month. Which was, at the end of the day, what motivated Brown most. Money. Lots of money.

Which brings us full circle back to SatGuide publisher David Wolford and his attempts to become 'the guru of satellite TV,' a position he aspired to when he was not plotting to blow up the Cooper beachfront compound on Provo and end my life.

Carol Graba on the phone to me early in 1983. "Bob, Beach Craft says they will put two pages of four color advertising into CSD if they can 'have' four pages of editorial."

Me to Carol. "And what did you say to them?"

Carol. "I told them you would not agree to that, our editorial pages were not for sale and if they wanted editorial coverage, they would have to talk to you anyhow."

Wolford had adopted the Rick Schneringer approach to business; "grease my palm, I will grease yours." It worked, after a fashion, in selling display booth space at STTI trade shows - why not in loading up a magazine with advertising as well? The 'model' for this, unfortunately, was Rick Brown and his management of SPACE. "Pay lots of money and you can be on the Board of Directors; pay a little money and you 'might' get onto a committee."

I cite Beach Craft for no reason other than I recall the incident and what happened next. I called the firm in rural (Mark Twain) Missouri and pursued their 'request' for 'editorial space.' The conversation ran along like this.

They. "What's wrong with 'trading' advertising space for editorial space? - you need 'something' to fill up the non-advertising pages anyhow."

I forgave them their lack of discretion and understanding of the TVRO industry. Anyone who ever picked up a copy of CSD quickly worked out that finding "something to fill up the non-advertising pages" was the least of my problems.

Me. "We do not publish press releases. If you have something that is very well written dealing with a topic that is currently 'hot' in the industry, I do quite routinely publish articles submitted from outside sources. But - never with any connection to advertising. What you can do is bundle up one-each of every one of your satellite products, ship them to Fort Lauderdale and they will then come down to Provo for tests. I can't promise 4 pages per se, it might be 1, it could be twenty. What you will receive is an unbiased, full written report appearing in CSD describing everything good - and everything not so good - we find with your products."

They. "We of course have the right to preview what your reviews say and suggest changes."

Me. "Absolutely - not! You will read the report in CSD along with everyone else who subscribes to the magazine."

They. "Suppose you don't like something our products do?"

Me. "Actually, I can almost guarantee you that will be the case.

Look at it this way - you'll get instant feedback which may benefit you with the next version."

They. "I think we'll just buy the advertising and skip the product review."

Had they done their homework, page 46 of CSD for February (1983) could have saved them the attempt to get CSD to agree to what Wolford had apparently agreed to do.

"I consider myself a close friend of you and your wonderful family. I have great respect for your research and findings. So I find writing this letter very difficult to accomplish. When I came across my copy of 1983 January CSD, I was greatly distraught when on page 42 was a statement claiming that a 12' Paraclipse outperformed an older model Hero 20'. I don't doubt your findings, after all you have been in the industry from day-one and I would trust your findings long before anyone else's."

The writer was Hero's Bob Behar, indeed 'a close friend'. And indeed yes, we had found one of his products deficient in performance when compared with a competitor's antenna. Moreover, I had the gall to say so, in print (bold face print no less). Bottom line? No amount of friendship, or money, would get me to report something about a product (service, person) which was not true. Or at a minimum, not true by my standards of journalism.

So during 1983 as SPACE turned more into a 'money factory' for an equally close friend, attorney Rick Brown, it would fall on my shoulders to write some less than 'friendly' things about the way Brown was reacting to 'insider advice' at a time when many of the SPACE decisions seemed to me to be running counter productive to the best interests of the industry.

The industry, in my mind, was 1/4th manufacturers, 1/4th distributors and 1/2 dealers. The manufacturers and distributors paid me money to create a magazine which the other half read. And believed in. Which was painfully obvious to all concerned. Including Rick Brown, whom I would occasionally remind that he was in charge of SPACE because I had created an industry and arranged for him to be on hand live and in person as early as Miami SPTS '80 where he first presented a concept (his, and mine, in fact) for a Washington based trade association.

May 1983. There on the front cover of CSD, Ed Grotsky with a 6 foot antenna he had dubbed 'The Skyking 6' while appearing at Schneringer's STTI Las Vegas show. In CSD I wrote, "The Las Vegas STTI 'event' was a haven for hucksters. You could buy anything from 6' bird

baths (antennas that were deformed) to little gadgets that modified your Alliance polarization rotors. You could lay down more than 8 grand for a three-bird SMATV multiple feed spherical dish or you could lay down $5 for a wide selection of printed literature that promised you fame, wealth and the 'secrets' of home satellite TV. P.T. Barnum would have been proud, and right at home, here."

Home base was the Riviera Hotel with more than 200 satellite antennas on a parking lot supporting 260 trade show booths in the exhibit hall. Winegard floated a helium filled dirigible above the parking lot as thousands (nobody - least of all Schneringer - ever came close to accurately estimating the total attendance) jammed an over crowded exhibit hall and filled to capacity the 950 seat auditorium where manufacturers recited carefully prepared sales messages for the 'unwashed' who came there to be 'spiritually motivated' by the cleansing power of the inverted bird baths sprouting across the parking lot. Ed Grotksy's 6' 'Skyking' was a symbol - smaller dishes had arrived and nation-wide folks were standing in line to spend their money on home dish systems.

STTI in March was in the middle of what was, traditionally, the 'slow period' for annualized dish sales. But Peter Dalton, in a rare public appearance, announced KLM had shipped 2,600 receivers during February - a big number for the smallest selling period of the year. Folks were openly talking of selling and installing not fewer than 25,000 complete home systems per month by August and September - the sales peak of the year.

Dealers had finally worked out that slow sales in the winter was psychological, not related to any weather phenomena. Technology at work - frozen ground could be busted with a tractor auger and 6" drill bit to a three foot depth for installation of the mandatory 3-1/2 inch steel dish mounting pipe. Then, even if the air temperature was 20 degrees and water froze on air contact, a clever person could mix with 'heated water' enough cement which had been 'dosed' with Calcium Powder so that it would set up and become concrete before the water froze. Dishes in the dead of winter could be installed - end of myth number 26.

CSD reported some dealer impressions of the 'state of the industry'.

"I sold my first terminal 11 months ago. This week, just before coming to Vegas, I installed my 74th. All of this in a single rural county in Colorado. I use direct mail to get leads and I saturate the area every month or two. There are 13 more waiting for me when I get home. I never leave a job without putting $1,000 in my pocket after all expenses. This has been the greatest year of my life."

Repeat that several thousand times and you had an accurate description of the albatross that was growing around HBO's neck. Seventy-four new homes watching; HBO and Time Inc. not receiving a dime for their programming. Of course it would have to end. But not during 1983. Nor 1984.

"This is the damnedest thing I have ever seen. I have been in the retail business 20 years and I cannot explain why, when the raw equipment (antennas, LNAs, receivers) we need to build a system for a customer are in tight supply, the prices to us keep going down! The equipment you would like to buy you cannot get; the equipment you don't want you cannot get either. You tell me how a man can have no hope of having surplus inventory of what he manufactures for the balance of this entire year and explain to me how he keeps dropping his pricing! I simply do not understand it."

I did. Fear, and, opportunity. Fear that all of this would crumble and crack around everyone's head because surely, scrambling was coming. And opportunity - sales were great, and getting better. Make that "$1,000 in your pocket per installation" now - while there was no scrambling. The customers? Tell them whatever they wanted to hear as long as you made the sale! Words of caution were reserved for CSD and closed-to-the-public SPACE committee meetings.

The six foot rush. In the 'old days', everyone used twelve foot antennas and all channels (30 total, perhaps) were 'perfect', the illusion that all satellite channels had to be 'perfect' all of the time grew. But as the number of channels grew past 100, and the antennas became smaller, it became apparent that a high percentage of the marketplace would accept some channels perfect, some with 'noise' as long as they considered the system price 'fair'. It all seems quite basic now but at the time it was a mental hurdle for the dealers to make. Living in 'fear' that some customers might complain because some channels were not 'perfect', the dealers were at first reluctant to consider smaller dishes. I quoted a dealer interviewed in Las Vegas who summed it all up.

"I used to worry about whether a customer would accept a system that did not produce totally perfect pictures on all of the (RCA) F3R (satellite) transponders. I don't worry anymore. They will. If you stop and analyze which ones are apt to be weaker, and what these transponders carry for programming, the biggest loss is (Ted Turner's) WTBS in most areas of the country. So what if PTL and CNN are a little weak? So The Weather Channel is a little raspy. CNN2 booms in all over and there is always SNC (Satellite News Channel) in lieu of CNN. And

how many people buy a terminal because of PTL? Not many. And you can get all of the information you need from The Weather channel in a few minutes time - noise or no noise! Nobody is going to sit there full time as if they were watching a (noisy) movie.

"Sure, I'd love to have 100- plus channels noise free on our six foot dish. But we have to be realistic. We also offer dishes in larger sizes up to 13 feet. There has to be some value when a person spends more money for a larger dish; he gets more noise free channels. Not even the cable system I subscribe to has perfect pictures on all channels all of the time. If I want to watch something badly enough, noise or no noise, I do so. And I don't complain. I think most people are that way. Give them a decent selection, say 30-plus noise free channels, and they will put up with some noise on the rest if they have to do so. After all, they also know that if they spend a thousand dollars more with us, they'll get even more pictures perfect. We don't all drive a Cadillac but we'd all like to have a car. It is just that simple."

Analysis was hard to find but within a year some very complex studies would be created. And they would suggest both obvious and obscure trends in the public acceptance of home dish systems. The bottom line in advance of the studies? "At someplace around 5 million home dish systems, it will be impossible to turn back the clock and shut this thing down. At that point, home dish owners become a potent political power and those who are looking towards government for assistance in controlling home dishes will be far less likely to win the battle." HBO would be the very first 'buyer' of the studies because potentially they had the most to lose if this horse got out of the barn. Five million home terminals? By most estimates, 1987-1988.

Buried deeply in the hucksterism that permeated the first industry Las Vegas show was a man from southern California named Bob Taylor. His story telescopes into one event and one technology development all that had come before and all that would follow until home dish systems fell off the gang plank in 1986. CSD called it, 'Bob Taylor's Video 'Dolby''.

The background. Born in Eastern Europe, he had migrated to the United States as a trained nuclear physicist. MIT and others of similar stature hired him as a professor of physics but California called and off he and wife Christine went; the great American adventure. At STTI Anaheim (November 1981), he buys a one-day $5 pass in what may have been Schneringer's finest (if by accident) hour. During the course of the show he visited booths, filled out requests for literature, and entered a few contests. One of those was sponsored by National

Microtech - the Grand Prize to be a complete home dish system. He would win the prize in a random drawing and now in his backyard he had a working home dish system 'to play with'. He also promptly became a subscriber to CSD and from that worked out what he identified as being 'the two largest engineering challenges' facing the growth of the home industry. Challenge number one - better quality, more reliable motor drive systems - the gadget that moved the dish from satellite to satellite upon user command. And challenge number two? His perception that satellite receivers were not doing all they might do to recover weak signals. Which he correctly saw, a man of science, as a roadblock on the thoroughfare to smaller and smaller dishes. If smaller dishes produced less signal, the receivers had to be more sensitive to counter-balance the smaller dish signal capturing ability.

Using a Dexcel brand receiver, Physicist Taylor (not his original name in Eastern Europe) reduced the circuitry to a set of electrical drawings. Then, using his scientist mind, he analyzed what each part in the circuit did. And identified those that might be modified to improve the receiver's sensitivity. He did this only days prior the Las Vegas show, and before he had a solution worked out arranged to rent from Schneringer one of the last available 2 foot by 4 foot outdoor in-a-corner tabletop displays. He hoped his 'better designed' motor actuator circuit might find some interest there, and besides, "everyone needs to go to Las Vegas at least one time."

Literally as Christine was packing the car for the five hour drive from Van Nuys, Taylor got a prototype circuit board working. Time was short - he wired in a switch and with the switch in one position, the Dexcel receiver unaided. In the second position - the Dexcel with his (self-named) Linear Phase Lock Loop (LPLL) circuit working. His eye thought the difference was 'significant', in favor of his LPLL. With him in the car he took a tool kit, ten unfinished circuit boards and a bag full of parts. Before the show opened he would have ten of the circuit boards wired and soldered together and a one-sided quickly drafted sheet of paper that offered "From Satellite Concepts - (a) Linear Phase Locked Loop - carrier out $23.00; base band out $29.00." If he sold them all, he would still be losing money on Schneringer's table top display space charge.

To properly show off his two 'satellite product concepts' he brought along a 4 foot mini-dish, the modified Dexcel receiver, a trunk filled with the usual tools. On the first day of display, some people - not many - were talking about the 'unusually good reception on that four foot dish over against the wall'. Virtually everyone who even noticed

the display in the sea of more than 200 antennas incorrectly attributed the picture's quality (shown on a tiny 7" screen which by itself was a 'filter' of noise) to, 'an extremely good dish'. After all, six footers had arrived and sooner or later - as hopes springs eternal - 'four footers will do it as well'.

What few bothered to notice was the Dexcel receiver with the 'extra switch'. Or that if they stopped to talk with Taylor (few did) he would gladly demonstrate his LPLL device by throwing the switch.

Bob Luly, the man who changed the satellite world's thinking on polarization switching at Omaha in 1981, was the first 'smart person' to discover 'the switch'.

CSD would relate Luly's impressions:

"I couldn't believe it. Here was a man offering a circuit board for $23 which turned his four foot antenna pictures into displays which directly compared with all but the best of the six footers. I instantly offered to buy up all (ten) of the boards."

Luly was spot on. This was 'Best of Show'. He continued.

"I instantly saw what was going to happen to this guy. He would be gobbled up by a sharp talking promoter. There was no question in my mind the circuit worked. The difference between LPLL 'in' and LPLL 'out' was dramatic."

Luly had been (the CSD) 'Best of Show' on at least two occasions starting with San Jose in 1980, his umbrella fold out antenna, Omaha in 1981 - the Magnetic Polariser. His mind was riveted on the constant pressure from would-be 'users' of his special product skills and on each occasion he ended up wiser but not (much) richer. He ran me down as quickly as possible and explained the situation.

Unfortunately, at Las Vegas as any show I ever attended in any form, between 5 and 20 people hung around me with a never-ending barrage of questions ('there are no stupid questions - only stupid answers'). Over the years I have been 'pitched' new antenna designs while pissing in the men's room ("Hey - glad I caught you alone!") and schemes to reinvent SPACE while trying to dial out on a wall phone ("This will only take a minute!"). It was impossible for me to 'quietly' drift to the Taylor display without at least some of the perimeter following. Taylor knew me from CSD, later told me, "I looked up and here you come with maybe 25 people following right behind you. I thought, 'Holy Cow!' - now I'm in for it'."

I, like Luly, was instantly impressed. Taylor offered to show me the circuit board by removing the top on the Dexcel receiver. Over my shoulder I spied several receiver designers including Norman Gillaspie

(the original 'King of the Six Footers') pushing in for a better ear and eye shot. I suggested we 'wait' for a 'show 'n tell'. I didn't need Luly's narrative about what 'might' or 'could or 'would' happen if the details of this trick circuit got into the open world before Taylor had at least a pop-shot at making it his own. He'd be written up in history as the 'man who invented Video Dolby' but probably would not be able to afford a gravestone with an appropriate engraving to commemorate his achievement. For his cleverness, Luly was comfortably well off but unlike another 'Taylor' (Howard) had lacked the original common sense to go first to a patent attorney and then to his production floor with his own 'Show Stopper' designs. Jointly, Bob and Bob, would make an effort to protect the third Bob (Taylor).

With some effort I broke away into a corner with Luly and we talked it out. CSD wrote:

"Taylor most needed a friend at that moment. Even if he didn't realize that perhaps the 'easy part' was over and the tough part (getting it to market, protected) was ahead. "

He had ten circuit boards at $23 each. Someone such as Norman Gillespie could buy one, take it into his room at the Riviera and within an hour be back in his own booth advertising "LPLL is NOW in my receivers." Step one - me to Bob Taylor.

"Please - don't sell any boards to anyone. Not until we return with some backup. Not one - by the way, nobody has bought one yet - right???"

Fortunately, that was correct. He had all ten in his pocket. I took Christine aside and explained what they were facing. She listened intently and suggested she take the ten boards and place them into her purse. I agreed with the further suggestion, "And chain the purse to your arm!"

Step two. Who would Luly and I 'elect' as the beneficiary of this new technology? My mind instantly went to John Ramsey who had first pioneered a working version of the original Steve Birkill PLL - Phase Locked Loop. John had discovered that if the operating frequency of the PLL device was cut in half, the weak signal reception techniques greatly improved. I knew, Luly accepted from me, that if anyone really understood PLL technology, it would be Ramsey. Luly was voting for Dave Fedric and Horton Townes, the pair that had launched National Microtech, then were kicked out when the firm faced bankruptcy, and bounced back with competitor Satellite America. Luly, like I, knew them for their integrity and he had a soft spot in his heart for two guys whom he believed had been skewered with the short end of a sharp

stick at National Microtech. Rightfully, the firm selling this innovation, said he, "will rise to the top of the can in a hurry."

Ramsey, Fedric, Townes, Luly and I met in a Riviera Satellite America suite with circuit creator Taylor. Satellite America was distributing Ramsey's Sat-Tec receivers so if you said it all fast, it could work. We carried with us Christine's purse.

What Taylor had done was to improve the original Ramsey PLL circuit by analyzing, as perhaps only a scientist might, why even operating at 'half-frequency' it was still not achieving all it should be able to accomplish. He had identified a handful of parts, led by something called 'diodes', which when replaced with something else called 'Schottkey Mixer Diodes', and a handful of new parts turned the tame and lame PLL from Ramsey's innovation into a mean, lean machine.

For an hour Ramsey and Taylor with the balance of us standing around observing tore apart a Sat-Tec receiver and wired in one of Taylor's LPLL boards. There was no test equipment, no way to optimize anything. Everyone knew that - we didn't even have a satellite signal source to test the modified Sat-Tec in the hotel suite. The first 'test' would have to be at Taylor's table top 'booth' using his four-foot antenna where by now a crowd numbering in the hundreds awaited our return. Ramsey knew his Sat-Tec receiver, totally. Taylor proved he had an excellent grasp of his newly developed LPLL circuit board and the way it would interface with 'virtually any receiver out there'. But prior to the show he had been short of time and only the Dexcel receiver which he grabbed off of a home workbench had actually been tested with the device. Both were concerned, sitting on the floor of a Riviera suite, that the 'marriage' of the board to the Sat-Tec receiver would not - could not possibly - be 'optimized'. That would require a full set of test equipment and perhaps a half day of time. They had neither and Taylor was mostly concerned that the 'test' about to be performed on a display table in the Riviera parking lot would be inconclusive as a result.

Word that something 'quite spectacular' was about to happen had raced through the thousands in attendance. Magic words flew with the speed of sound. "A four footer that outperforms a 6 (8), (10) footer!" With each repeating of the story, it got better and more absurd. And the crowd grew larger. Christine was grateful, she would later tell me, "You had the purse!"

Luly's major concern was the opportunists that had been hanging around the perimeter of the growing crowd even as we headed for the Satellite America suite carrying parts. His own 'Best of Show' experience

was preying on his mind.

"I recalled in a terrible flash of memory all of the days and weeks I wasted listening to one promoter after another tell me how they were going to sell millions of my polarization system and how all I had to do was sit back and watch my bank account grow. I sensed Bob Taylor was entering the same pathway to big time disappointment."

Ramsey who had piled 'Best of Shows' up himself for years had a more practical concern.

"Because I was the guy who designed and developed the first divide-by-two PLL circuit, I remembered vividly how it only took a month or so for that circuit to be copied by everyone in the industry that was at the time using the low-cost PLL approach."

John knew that a circuit innovation, unlike Luly's totally unique electronic polarizer, was quick to copy and easy to 'disguise' in receivers already on the market. Having watched 'Best of Shows' from 1979 onward, my own instincts told me that if Taylor was going to have a Chinaman's chance at realizing any financial gain from his creation, massive publicity about what was happening and how it evolved would help put the circuit thieves on notice. For this reason I would devote four pages to the report in CSD for May (1983).

Back at the display table with the modified Sat-Tec receiver. A surging crowd, hundreds of questions, close to chaos. Ramsey's receiver had the top loosely fitted because John would be making internal adjustments normally used only at the time of manufacture and initial alignment. But with the top off to make the adjustments, the crowd could peer down into the receiver innards and see the LPLL board. All it would take would be someone correctly identifying the integrated circuit Taylor had elected to use and 90% of the circuit copying would be 'done'. So picture this. The only piece of test equipment available was the 7" portable TV displaying satellite pictures. Crowd control was attempted and every time a bystander reluctantly agreed to 'step back' two more took his place! Some managed to get so close to Ramsey sitting on a lawn chair that he could feel their hot breath in his ear.

As the receiver top came off to allow John to make internal adjustments, a piece of cardboard was laid over the open receiver top, effectively shutting off the direct view of the curious. However, now John had to work with his hands beneath the cardboard - the 'Braille adjustment', he later coined for me, while Taylor and he 'shared' the premium space directly in front of the 7" TV screen.

"Better. Worse. Backup a tad; there. Stop!"

A stock Ramsey Sat-Tec was connected and Taylor began' counting'

sparklies (noise hits on the screen). Then the quickly aligned modified Sat-Tec was connected and the exercise repeated, all the time Taylor voicing concerns that nothing had been 'optimized' between the Sat-Tec 'parent' and the Taylor 'child'.

"It improved the picture - no doubt about it," Ramsey would later report to Dave Fedric back in the Satellite America suite. That's what Fedric wanted to hear. He saw, correctly, dollar signs here. If a six foot dish would produce acceptable if not perfect pictures on say 30 channels provided the user was in the central 1/2 of the USA, could the LPLL extend the six foot useful range to maybe 75% of the USA - towards the east and west coasts where satellite signals were slightly weaker?

"Every time we add a new state or region to the six foot 'coverage circle' we open up new sales areas" was his totally correct logic. Unsaid was the further possibility that for at least some central USA segments, now perhaps a 5 or even 4 foot dish would be practical.

Ramsey brought them back to earth, briefly. "This was not a proper evaluation. It did make an improvement and perhaps, if we were very lucky, this is as good as it is going to get."

Luly, the optimist. "Or maybe there is more improvement there if you had the chance to work on it in your own lab without a crowd of potential circuit thieves breathing down your neck!"

Ramsey. "If Sat-Tec is licensed by Taylor for the circuit, and it does help weak reception, the end result will be about the same. The first Sat-Tecs delivered to Satellite America with the LPLL inside will be purchased by other receiver manufacturers. We live in an industry where there are no secrets. Not for very long, anyway."

Fedric was finally focusing on the 'real' challenge.

"You mean we can't protect the circuit?"

Ramsey. "Well, the first thing we do is get the part number off of the key components. Then maybe we can add some additional circuits around the primary one just to throw the copiers off. But no matter what we do, it won't be a secret very long."

Fedric. "Then we have to buy as much lead time as possible. Can we get a 90 day jump on everyone else?"

Ramsey. "If you will allow me to build up a sufficient inventory so that when we do ship the LPLL version, we ship a lot of product virtually all at once, we might get 90 days. But if we dribble them out as soon as the first ones come off the production line, somebody will get their hands on one and virtually beat us to the marketplace with our circuit."

Taylor. "I had no idea this might be as important as it appears to

be. I am perhaps as concerned that it get used as widely as possible for the betterment of the industry as I am concerned about getting paid for it."

Luly. "Don't be so generous. David Barker was generous. I was generous. And look what happened. Yes, many people were able to benefit from our technology. But in that process, people who had nothing to do with the creation of the technology got rich while Barker and I, who made it possible for them to market this technology in the first place, did not benefit. If anyone benefits from this, then you must benefit."

Ultimately? Well, Satellite America was licensed through a hastily drawn agreement on hotel stationary in their suite by me, and some money changed hands. Satellite America as a distributor now had a tool to 'deal more effectively' with the firms who wished to supply them receivers for resale to dealers. During the balance of the Las Vegas show, a number of other receivers were clandestinely field-modified to test how well the LPLL would work for them. The final analysis was that some receivers, perhaps the Dexcel randomly selected by Taylor for his first prototype, showed the most significant improvements while others such as the Avcom series which were already extremely good with weak signals benefited the least.

It was Bob Taylor's '15 minutes of fame' and as we pointed out in CSD, it all began when he purchased a $5 one-day exhibit hall pass at the Anaheim show, entered a drawing contest and ended up winning his first satellite TV system because Dave Fedric as National Microtech had donated the terminal for Rick Schneringer's show promotion. Fedric summed up the coincidence that the give-away terminal had now come back full circle to land on his doorstep as the LPLL.

"You cast your bread upon the waters."

HBO and other pay programmers could be excused if, in mid-1983, based upon the Las Vegas show and the reports in CSD, they began to seriously question "just how small home dish systems might go - before the limit is reached?" Certainly my own not-infrequent contacts with HBO personnel were heavily laced with requests for my opinion on this aspect of home dish system development. Time, Inc. was, after all, one of the 'master minds' behind the cable TV scheme to encourage individual communities to require extensive public hearings plus building permits for any home dish systems larger than 2 or 3 feet (it varied from community to community). Bob Taylor's four-foot demonstration was a worry. Might there be another next-generation Bob Taylor waiting in the wings with some circuit that would further reduce

the minimum dish size? Their fears were well founded if not technically sound. But at HBO, the Taylor PLL was a brand new, frightening, time clock ticking away at their kingdom.

A two man crew, skilled and experienced, could typically manage three complete 6 foot system installations in a single day. Including boring a hole and pouring concrete. Furthermore, at someplace around 4 to 5 feet dish size, you no longer really need to bore a hole in the ground (plus mix and pour concrete) for an antenna mounting pipe; dishes this small could (and were being) mounted on a rooftop, attached to a chimney, or even to the side of a house. The combination of lower prices with smaller dish antennas and quicker installations was a direct pathway to not 10,000 home terminals per month but much bigger numbers - say 20,000 or even 50,000. And if the 'magic threshold number' beyond which home dish systems could not be 'turned off' was someplace around 5 million, at 50,000 a month perhaps in as little as 5 years, teeter-totter time. But, if the dishes became small enough (4 foot was in that region) and cheap enough ($995 was already happening), it would only be the inability of the equipment suppliers to catch up that would retard the growth. And the Asians were coming - with unlimited production capacities.

One of the major roadblocks to selling large quantities of home dish systems in a hurry was the cost. $995 was manageable, $1,995 was 'raid the savings account time' while $2,995 was 'go to the bank and borrow the money' for most buyers.

Not every supplier was giving in to the $995 priced 5 or 6 foot antenna rage. Channel Master, for example, had a two and three step distributor - dealer network to support and they could not do this while maintaining a price of '$2,995 retail', which they advertised in many national news magazines and special interest ('Cattle Farming' etc.) periodicals. Their smallest system included a ten foot antenna. Some, not many, dealers had the expertise and common sense to arrange with a local bank or finance company 12 to 36 month term payment packages. Most systems sold in this way cost the dealer 5 to 12 percent of the selling price - a 'discount' to the finance company on top of the interest they demanded for the term loan from the dish system buyer.

There was a subordinate challenge; system guarantees or warranty. KLM might offer a 'factory 12 month warranty' (they did) but most segments of a typical system had only the dealer's good name as a backup should problems develop. Someone who might have sold 74 systems in eleven months of business was just as likely to be off raising

range-fed chickens next month, potentially leaving his home dish customers with 'broken eggs'. It was the nature of the business - a quick buck, big profits, but very little long term future.

My first proposal to improve this situation went to SPACE where I remained on the Board of Directors - for the moment. Brown showed no interest in becoming a 'financing company' (not he personally but rather through a trade association effort with established finance companies) and the association's directors were unable to focus on why making sales easier was good for their manufacturing and distributor business, most being too engrossed with raising their own production capabilities to cope with the sudden increased demand. "The Rothschild fortune," I told anyone who would listen, "was not made selling diamonds. It came from financing those who bought diamonds."

There were very few sympathetic ears which only meant I probably did not know what I was talking about. "Stick to making this a great industry," suggested Tom Harrington. Actually, I thought I was trying to do just that.

But in May (1983) while on Provo having an ice-cream break at wife Susan's and Sally Ward's shoppe, I was introduced to another American Provo resident by the name of Bill Young. A large man who enjoyed fine dining, deep water fishing and writing checks with 7 significant digits, Young casually mentioned he was in the insurance business in Maryland. As my mind had been wrestling with creating an industry-wide 'warranty-guarantee' solution for dealers, when Young began ticking off some of the 'crazy performance guarantee' policies he had written over the years, something in my head said, 'Bingo!'.

Insuring the Statute of Liberty against structural failure? The passing arm of a famous NFL quarterback? A Indy 500 race car against engine failure before the end of the classic race? These and dozens more were 'standard practice' for the robust man from Maryland. I invited myself to dinner at his place promising to outline 'an entire industry with an insurance challenge'.

Young's presence on Provo was something of an enigma. Plainly, he was hiding money there, shuttling it from a profitable insurance agency to real estate and commercial buildings he was constructing on the island. Very possibly, he was the sort of 'American entrepreneur' that James Rideoutte of the Bahamas office of the IRS was seeking information about. My native buddy Art Butterfield would warn me, "Keep your hand in your pocket when with Bill."

Young visited my WIV operation where he spent a half day on a fast

learning curve for satellite systems. Somehow, he had missed the meteoric growth going on all around him stateside and on Provo in this field, and I found him to be a 'sponge for information' that never seemed to fill up. His manner was disarming but I had been disarmed by the best in the world and it did not put me off. Others would not find him so amicable. After two intensive days he disappeared on a private jet bound for Maryland promising to get back to me with a proposal.

What I hoped for was a business plan that would allow installing dealers to sell satellite systems with an optional monthly fee that would create a 100% warranty on parts and service backup. My logic was simplistic: If dealers could offer equipment with a $10 a month range fee which would guarantee the system would perform 'as new' for 12, 24 or 36 months, selling new systems would be less of a challenge. Especially if the 'guarantee/warranty policy' was 'insured' by a nationwide, recognized major in the product guarantee field. As Young explained it to me, when you bought a refrigerator or car or lawnmower, and you elected an optional 'warranty plan', you dealt with an insurance company. Toro did not collect the extended warranty money for their lawnmower, except at the dealer level. The dealer received a cut, then the money went rapidly to an insurance company which provided a 'warranty' based upon the same type of actuaries which govern life or health insurance. If the mower quits, the buyer goes to the dealer - the dealer goes to the insurance company and they tell him how much he will be paid for replacing certain parts. The dealer is obligated to make the repairs for the stated price because he sold the original 'policy'.

What was missing here with home dishes was any kind of 'actuarial table'. The insurance company knew how often a Toro lawnmower quit, and why, because they had invested time (and money) in studying tens of thousands of mower repair histories working out the parts that failed most often and the cost of the replacement parts and labor. They did all of this before offering 'extended warranty/insurance policies' for lawn mowers.

The home dish world. Hundreds, thousands if you believed Schneringer, of small firms turning out products from garage workshops and fiberglass boat sales agencies nation-wide. In lawn mowers there might be a dozen 'brand names'. In home dishes, hundreds plus. How would a reputable insurance company obtain enough accurate data on system failures, repair costs, labor costs with such a hodgepodge of hardware out there? Not to mention the totally inconsistent installation techniques employed by dealers. Would a policy cover a

dish that blows over in a wind storm without regard to whether the installer 'forced' the concrete to prematurely 'dry' by dosing it with Calcium powder?

Late in May his private jet was back, loaded with 'insurance mechanics' - people who existed in the back rooms of major insurance firms creating eloquent studies for every conceivable category of product failure. I had fair warning of their arrival, being asked to 'hold school' for 'as long as it might take' to educate these number crunchers on what a satellite system did, how it worked and most important of all, what happened and where - when it did not work. Young made a big deal of 'this is costing me plenty' - he meant coercing this group of four top level insurance actuary writer mechanics down to Provo for close to a week. In time I would learn the true meaning of 'costing me plenty'.

These were smart people; one was very mechanically inclined with a long list of impressive university degrees and a dossier that included special assignments for General Motors, Ford and other 'names' who hired him when they wanted outside counsel on why things broke unexpectedly. Another was someplace between electronic and electrical qualified and he had actually attended one of the satellite shows on a whim 18 months prior. The remaining two were 'number crunchers', educated guys who individually could glance at a long column of five, six or seven digit numbers and then tell you (1) the total of the column, (2) the mean number of the column, and (3) how many prime numbers could divide equally without fractions into the column total. Young thought it best they all sit down and read every single issue of CSD from Volume 1 Number 1 through May 1983 before we held school. My alternate suggestion, knowing that would amount to around 1.2 million words, was that they read for half a day and we'd go to school at the WIV + CSD Provo test facility for the second half of the day. At the end of the first session I discovered 'a day' in Young's world began around 8 AM and did not stop until midnight although the last three hours were more booze and eating the day's freshly caught fish or lobster, than work.

By day four I had adapted to what I thought was a pattern when Young suggested I 'assign' the day's lecture show-and-tell to our resident escape artist Tom Humphries and I, 'go fishing with me'. Young's concept of fishing was to load his yacht-of-the moment with every possible diversion, let the local deck hands do the actual fishing unless of course something really sizeable seemed to be 'on the line' in which case his considerable bulk sank into the leather padded rear deck

fishing chair to land it himself. All conversations with Young were 'intense'; small talk was never on the agenda. He had mentally rehearsed every aspect of a conversation before opening his abundant mouth. Young proved to be an exceptional listener, very fast to grasp new concepts (of which everything about satellite was new to him) but equally quick to disarm you if he thought you were avoiding his always very pointed questions. If you did not know the exact and precisely correct answers, it was better to say so than to stammer and try to think your way through an answer out loud. Many people would find him overbearing. Correct that. Most people found him overbearing. A few found him frightening and once he believed he knew all that was important to know about a subject, he became the lecturer and you (any 'you') became the student. Sometimes it only took ten minutes.

"There is more to this than simply insurance," he began while there was a lull in the fishing. "The insurance is a carrot, to get into dealer's business plans and to make them agents for lending money."

Until this point he had never mentioned to me a 'larger scheme' than insurance. He had quickly seen that dealers who could offer 12 to 36 month financing without going to their local banks and without having to co-sign loans for questionable applicants 'will be the survivors in this industry'. The plan was to wrap 'extended warranty coverage' (insurance) with a loan package. As those had naively been my two objectives when embarking on my search for a better world that made the dealers the king of the hill, it all sounded very attractive to me.

The next trade show was less than a month distant; Minneapolis, Schneringer's 'Can-Am' opus. Young: "I want to be there, meet the suppliers, and find me a manager." In Young's mind, a timetable was forming and apparently the actuarial fellows who had taken over my annex building for their study of equipment were saying positive things about the 'insurability' of home dish systems.

My problem at this stage was I knew too much, stood too close to the forest to focus on more than individual trees, and did not fully comprehend the pecking order between 'the warranty' aspect and the follow-on 'finance plan'. I was still asking questions about 'dishes that rust', or 'concrete poorly poured' or 'receivers badly designed'. On the last day of the actuarial seminar on Provo, Young took me aside to explain, "Look - the bad stuff and the incompetent people will fall out the bottom of the barrel. They may start with the plan, but like grading tomatoes for market, once they are 'in the hopper' fighting for their lives, they will grade out - down through the slots at the bottom. The first six months will be hell, after that, the bad apples will be gone. Forever."

That gave me plenty to think about. SPACE had been arm wrestling with equipment standards - the object of which was to make the industry more conscious of poor performing hardware. This 'plan' could do that; products without the 'warranty seal of approval' would quickly become outcasts. "If it cannot be warranted, it should not be sold," thought I. But that led to "who decides which products can have insurance, which cannot?" Or, suppose a specific antenna had some long term structural problems and 'rated' only a 12 month or 24 month but not a 36 month 'insurance cover'? My instant focus was being blinded by tree limbs.

The potential for graft and corruption within the program was also very obvious to me; a manufacturer who wanted his products included because warranty-coverage was a passport to financing which in turn held the potential to greatly increase the total sales of a product would be under immense pressure. It could all turn on the integrity of the actuarial and product approval guys; not necessarily the quartet spread throughout my annex building study but rather those who would become the 'field reps' for the plan as it matured. It all seemed quite dangerous to me and for unbiased advice I spent an hour with Provo local Art Butterfield. He had been a part of everything I did since landing on the island, had (WIV gratis) satellite at his home and for his religious radio station feed, would go with me to Birmingham (England) in September to participate in the first European cable and satellite show. Moreover, he seemed to know far more about the 'inner workings' of one Bill Young than I.

Art listened very intently, asked all of the correct and intelligent questions, and studied my face after each answer.

"This plan has very little to do with insurance; you know that?" he suggested. I offered this was becoming more and more clear to me by the day.

"I think you need to know 'he' wants to create an offshore insurance firm here, to 'cover' the apparatus and he has been after me to take the project to 'Norman' (Saunders - the Prime Minister) for special approval. Our laws here allow the establishment of 'pocket banks' and 'pocket insurance companies' as well - nothing more than a mail drop with no real assets here and no physical presence other than a file folder in a local attorney's office."

A 'pocket insurance' company might exist in the Turks & Caicos with no real ability to cover anything - and not break any laws. At least not in the islands. The monthly 'premiums' would be paid into a US (Maryland - Young's home office) account and immediately be wire

transferred to a TCI bank. After that, well ... who knew what might happen to the claimants when somebody's dish fell apart in an ice storm.

Butterfield continued: "The real money will be in the financing. One plan I've been exposed to will involve taking out a mortgage or second mortgage on a homeowner's house to the amount required by the equipment financing. At some point 'he' will tell you that only folks who own a home, or are buying a home through a mortgage loan, will qualify for the dish loan. Now, if they fall behind on their payments, in some states it is possible for a mortgage holder to force the people to put their home up for sale so that the unpaid balance of the dish loan can be paid off."

Of all of the people I had met in my life as possible 'mortgage holders' for a home I might be purchasing, Bill Young was not going to be anyplace close to the top of a list of desirable lenders. Art chuckled at the prospect of owing Young money when he held a mortgage on something you owned.

And the source for this 'mortgage money'?

"Our banks don't very much care where money originates; you and I both know there are people laundering US dollars here. Big time. This one could potentially be the biggest of them all."

So there it was. From a harmless ice cream cone in wife Susan's shoppe to being in league with someone possessing the skills and potential to turn an entire industry into disarray. I had been warned. And to be sure, it didn't all make sense - yet. But the potential to turn it into something quite sinister was very obvious.

Young hit the Minneapolis STTI show (June 24-26) like a 300 pound undercover agent dressed in pink tights. Nobody knew who he was, everybody knew he was there. My 'assignment' was to bring one manufacturer at a time to visit with him in a suite he had taken for the event. At the same time he was searching for 'a name person' to head up the still unnamed business activity. His approach to this effort was similar to my attempt to get Steve Birkill to be the man in charge of producing Keith Anderson's SDCN hardware just prior to the Omaha show in 1982; put somebody who had a 'clean reputation' out front. Young also wanted someone who was quick on their feet, knew the industry backwards and forwards and most important of all - would not deviate from instructions. Bill Young instructions.

I made a list of candidates and then arranged for each to meet with 'the man' without any knowledge they were on a 'final cut' list of candidates. Young told each he wanted their reaction to his business plan

and each listened, asked questions, and then expressed their views. Most flunked out when asking questions, primarily because their questions quickly gave away their failure to grasp that 'Bill Young was 'the' king' and when you were in his presence, there was nothing else that came first.

It came down to two, rather obvious actually, final candidates. I would take a photograph with Young, Larry James (working with Peter Sutro at Patmar, at the time), and Guy Davis (working for Dave McClaskey at Intersat) standing before the Minneapolis host hotel and it would appear on the front cover of CSD for August. Inside, 'Insurance: Fact or Fiction?' was the primary piece in that issue's 'Coop's Satellite Comment'.

Young believed my enthusiasm to see 'insurance + financing' work for the industry would keep me writing all of the 'correct' words and stories in CSD. I had no offer of participation in the scheme, expected none, would have been dismayed had it been offered. My only 'guilt' was my perhaps overboard enthusiasm to see the industry grow up - maturing to better, more reliable, equipment and a sound system of obtaining financing for the customers. After one year of trying, it had become obvious to me that any effort on the part of SPACE to create 'equipment standards' was doomed to fail. Brown was against it, the manufacturers were only for it if they could dominate the results, and that left the distributors (who in mid-1983 SPACE still did not recognize as a viable force) and the dealers clamoring for 'standards'. And me of course. Young's actuary-table driven warranty program seemed like an answer even if it would mean many of the existing industry suppliers might find themselves selling products which could not be insured for medium or long term performance.

In Minneapolis, Young very cautiously approached the financing aspect of his plan with a small handful of people who interviewed, mindful that if he appeared to be focusing on financing it would be impossible to contain that 'secret'. The industry leaked rumors like a sieve and he knew that. CSD to the rescue. Not quite by coincidence but close - the June, CSD published the nation-wide results from a poll the magazine conducted during April and May. The report, titled 'Equipment Reliability Survey', did what nobody had done before. It provided an alphabetical listing of suppliers for antennas, LNAs, receivers and motor drives. After each company name, CSD published percentage numbers - quickly identifying which firms were highly or poorly rated by (1) distributors, and, (2) dealers. The ratings cut across mere product performance going to the core questions: What happens

when something does not work or breaks, and, how do you rate the performance of the supplier to get the problem rectified???

It was a terribly gutsy thing to do because the firms that did badly (such as KLM receivers which overall earned 33% positive marks and 67% negative) could be rightfully expected (1) to cancel their advertising with us, (2) contact me in a nasty mood, or, (3) join David Wolford's Provo beach landing team intent upon blowing up my home.

I had thousands of survey responses to tally (each survey sheet had up to 25 separate answers to provide), and in fact the insurance mechanics who made my annex their home for a week late in May spent a full day going through the same forms while creating their own impressions of the industry. It was a 'coincidence of a sort' because the survey was well underway when I had that first ice cream cone with Bill Young and when he understood what I was doing, his interest in creating a warranty program for home dishes multiplied many times over. So in a sense, it was the ready availability of the CSD survey materials, before they appeared in the magazine, which fuelled Young and everything that followed.

"Receiver manufacturers seem to be in such a rush to get NEW product to the market that they are not getting the bugs out before shipping." (Alaska) "An early Luxor receiver worked horribly; poor video that drifted, no printed information at all. The distributor turned a deaf ear in spite of numerous long distance telephone calls. "(New York) "Amplica wanted $125 to replace the 'N' connector, out of warranty. We settled on $50 after discussion. Return time - approximately 5 weeks!" (Kansas) "I have three 'low cost' systems that I cannot sell, including one damaged antenna, three rusty mounts, and two used receivers (which were shipped to me as new). The response I heard when I asked for some understanding from the distributor they all came from was, 'What do you expect for the price?' Certainly not integrity!" (Luis Lucerno, Santa Fe, NM) "The 11 year battery (their claim) in the early model Starfinders would go dead in sixty days." (Iowa)

Hundreds (and hundreds) of reports, in detail, out of which several clearly defined trends emerged. Many responses showed considerable dealer 'we care' responsibility; "Every Janeil antenna requires monthly service calls for rust removal and repainting" (Marbank, Texas). And as an aside, CSD also tabulated the number (converted to a percentage) of individual brand/product names mentioned in each category. For example, 12% of all surveyed mentioned something about the ADM antenna line indicating the percent of market which ADM had captured.

38% mentioned Avantek LNAs. 18% mentioned RL Drake receivers while 22% noted ADEC motor drives.

Somehow, I did not fully understand the mechanics, this pile of dealer surveys combined with reports published in CSD over the years, and a lengthy inspection of the CSD + WIV satellite installations on Provo, was to create for the actuarial analysts sufficient data to allow them to 'tag' the various home dish system components with 'percentage of failure' footnotes which they would be 'betting the insurance company' net worth against.

Returning to Provo from Minneapolis, through Fort Lauderdale where by coincidence Young maintained a palatial villa, we did a summary position which from my notes would mature into the August issue report.

"I think you should mention the financing," he began. I was flabbergasted.

"It won't be a secret long; Larry James has already called me to advise he was hearing rumors about it on his airplane ride back to Oklahoma. If you report it in some detail in Coop's, at least the accurate facts will be out in the open. We will be hurt more by rumor than we will be premature disclosure."

And so in CSD August I explained how, with financing, a dealer who sold a system made up totally of 'insurance-approved' components (mixed anyway he or she wished) could earn an additional 64% (more take home money) by participating in both the insurance and financing programs being considered. How's that? Both the insurance folks and the finance firm would 'reward' the dealer with a 'sales commission' because he had selected the program and pushed it to the client. Young summed it all up.

"This is a deficit financing economy. The vast majority of consumers do not look at the final price of a purchase; they look at their monthly budget and calculate whether that can fit new (monthly) payments into that budget. Most people don't pay cash for a car; they finance the car at GMAC or FORD or Chrysler and they pay for it as they use it."

He backed up his enthusiasm by quoting from a study his insurance actuarial researchers had created. "Ninety-eight percent of all home dish systems now sold result in cash money being handed from the customer to the installing dealer. Only 12% of new car sales are done for cash at the time of purchase. If this industry is going to grow, it's time to step up to deficit financing."

Young's target date for a 'hard program' (on paper, with all of the loose ends tied up) would be the SPACE Orlando show scheduled for

November. The largest loose end remaining? Selecting someone from the industry to be 'the front man'.

Larry James. I first was introduced to him as SatFinder's general manager, working for David MacZura. And when SatFinder folded, James moved quickly to join Peter Sutro at Patmar Technologies. Sutro was about the only businessman in the SMATV industry who was trying to 'play it straight' with the programmers. Using quality equipment, he had put together a distributorship focused on the installation of systems for motels who would, through Patmar, purchase legal (being 'legal' was the clincher, here) programming from that handful of programmers who were willing to sell to individual motels. HBO and Showtime had already said 'no' to this plan although Sutro kept knocking on their New York City office doors hoping that by being a 'Boy Scout' he might talk them into changing their minds. No, they never did - until signal scrambling was implemented. That left Peter with some third-rate movie services, an adult channel or two (people who check into motels seem to have insatiable appetites for sexually oriented movies), and a handful of others. His attempts to get SPACE support for what he was doing had fallen on mostly deaf ears; attorney Brown was too busy spending SPACE member money chasing the big names (HBO et al).

James fit right into Patmar because he needed a job and something to legitimize himself after the MacZura SatFinder fiasco. James also had the instincts of a good journalist, one able to chase down a new development or story without allowing himself to be swayed by false rhetoric. I tested him with an 'assignment' that seemed to fit right into his new position with Patmar.

An insider at the Motion Picture Association of America (MPAA) had tipped me off during May (1983) that a study they were completing would, when released, claim 'more than 10,000 motels and hotels are stealing premium cable programming from satellite'. Once again, I believed the best way to deal with such a mind-blowing number was to pre-empt the MPAA with a report of our own. James agreed to help and in CSD for August (1983) we jointly wrote a detailed analysis of how, for typically $3,000 or less, dish systems were going into motels, hotels, camp grounds and other businesses of temporary-abode. We spot checked motels in several cities, took plenty of (published) pictures and generally made it very plain that out there 'in our industry' were people (firms) who were going to bury us with their total disregard for commercial law.

We found in places such as Oklahoma City that, where motels

grouped along busy thoroughfares, typically 70% of the motels (without regard to the price they charged per night per room) had in mid-1983 already installed dish systems feeding HBO, Playboy and others to in-room TV sets. I called the report, "PIRACY: The Cancer Gnawing Away at the Industry." CSD documented the miserably-poor quality of the actual installations, and the callous disregard for property rights shown by the motel and hotel operators. One firm in Springdale, Arkansas not only provided cut-rate priced systems, fully installed, but went so far as to create "HBO Here" signs to hang out in front; the signs being an almost exact replica of the 'real' signs provided by HBO to paying customers. Of course these motels were not paying HBO (or Playboy or anyone else) for their service.

Larry's work on this report and a couple of others underway convinced me that he could be entrusted to create material for CSD which suited my larger plan for CSD/2. Which was?

A final stab at SPACE. The June published 'Dealer Equipment Survey' reinforced my strong belief that being a dealer in this field was akin to being a pimp. They got bad equipment from manufacturers, bought from distributors who refused to stand behind the product and could only learn enough to survive by making (expensive) mistakes and then not making the same mistake again (all training value having now disappeared from the Schneringer shows - which made dealers vulnerable to slick four color brochures and fast talking salesmen), and SPACE mostly wanted their money but don't ask for practical help with day to day problems.

My plan. Create a miniature version of CSD and call it CSD/2. Bring it out in the middle of each month (CSD being a first of month publication), and send it without charge to every 'Dealer Member' of SPACE as a bonus to their membership. At my expense. This would be a smaller version of CSD, initially 16 pages an issue, formatted like a 'Newsletter' rather than a glossy magazine, concentrating on issues which the dealers would most profit from. I went to attorney Brown and offered to send all of his members CSD/2 without any cost to SPACE or the members and after trying to get me to name it "The SPACE Member Newsletter" (I said no), he agreed. He (SPACE) would get credit for this new 'member service' and that would be that. Subscriptions would alternately be available to non-SPACE members.

Creating an additional 12,000 words or so each month would be a challenge and Larry James was, I hoped, my answer. He had all of the necessary skills although no actual experience as a journalist. I invited him down to Provo at my expense but did not tell him what I had in

mind until he had been there a day or two. Little did I know that Bill Young had already decided to offer Larry the position of running the insurance-financing project. Life was about to become very confusing.

In fact, there was another element underway which would put 'the cap' on 1983, for me, my family, and more than 30 others from the USA, Canada, Japan and Nepal (!); an 'expedition' to Sri Lanka to visit with Arthur C. Clarke.

Arthur C. Clarke (now 'Sir' Arthur C. Clarke) is the undisputed 'father' of geostationary satellites. Clarke, for the unwashed, is arguably the most scientific of all 'future world' (some would call it 'science fiction') writers. Of importance to the home dish industry, it was Clarke who in October 1945 wrote a four page technically correct article entitled, "Extra-Terrestrial Relays," for British publication Wireless World. His article was a blend of scientific fact and fantasy with the fantasy being totally supported by the fact. In other words, he took known information (although much of it brand new in the scientific community) and postulated how a marriage of what was known with what could be done with that knowledge might result in something totally new; satellites 'suspended' above the earth's equator in fixed or geostationary positions, equipped with state of the art electronics capable of broadcasting radio and television service to as much as 42% of the earth's surface from each location. Think of it as a television transmitter with a (very) tall tower extending 22,300 miles above the surface of the earth, located at the equator.

Setting aside another 'fantasy' he would later write about ('the Skybridge' which was, on paper, almost exactly that - a very tall tower built on the equator), what made his postulation uncanny was that 19 years after "Extra-Terrestrial Relays" appeared in print, the first attempt at geostationary satellites would follow almost precisely the plan Clarke outlined in his paper. By the 1980s, a number of groups would have recognized his brilliant plan by awarding him a variety of prestigious accolades, including 'The Marconi Award'. The first-ever issue of Coop's Satellite Digest, October 1979, carried (with permission from the author) the original 1945 paper and on the front cover in glorious four-color, Arthur C. and a pair of Indian technologists on the occasion of his Sri Lanka home being 'decorated' with a 15 foot satellite dish (it later collapsed in a typhoon). Back when the American built experimental ATS-6 satellite was 'on loan' to India, the so-called 'SITE' project, someone in India recalled Arthur C's original article and thought it a good idea to 'gift' him with a 1974 version of his fantasy thereby allowing him to tune-in the Indian satellite TV tests. In 1978,

prior to leaving the Community Antenna Television Association and its monthly CATJ editorship, I had made contact with Clarke in Sri Lanka and placed him on the CATJ mailing list. An exchange of short notes ensued, his largely confined to commenting on the always revealing revelations in CATJ and mine thanking him for his scrutiny of the fast developing technology.

It was the photograph he provided showing the gift dish from India that planted the thought in my mind. Which was - "If the Indians could provide a free satellite dish as a measure of their gratitude for 'creating' the entire concept of geostationary satellites, could not the (North) American home dish industry do something even more spectacular?"

We existed by our wits ('half-wits' according to my acquaintances at HBO), fortitude to tackle the unknown, total lack of fear that it all might collapse tomorrow or next week, against all regulatory and business models ever created. Arthur C in his own way had followed a similar pathway in life and the more he and I exchanged 'notes' the more certain I became that 'we owed him' - big time.

Now it happened that the Sri Lankan government was being rewarded, late in 1983, for 'allowing' Arthur C. Clarke to reside there. An Englishman, a world traveler with significant scientific prowess in both the seas of our planet and the 'oceans of space', he had settled in Sri Lanka at a time when the country's original name still read 'Ceylon' on many airport signs and personal stationary. Now, in 1983, a handsomely well paid author (including at the time in question the final work on the movie classic '2010: Odyssey Two') , a celebrity both at home and abroad, was funding a 'School of Engineering and Technology' at the Colombo suburban University of Moratuwa. It would be called, appropriately, "The Arthur C. Clarke Centre (for advanced studies)."

Early in 1983 I proposed in CSD that an 'Expedition to Sri Lanka' be mounted, to consist of no more than 30 adventurers, who would arrive at his home bearing gifts. Sri Lanka was of course more or less half-way-around the world from North America so the logistics of all of this was going to be formidable. Yes, the gifts would include new satellite dish systems.

The original Indian dish had blown off his second story balcony long before, but never mind - the satellite for which it was designed had been moved and only provided instructional TV to remote Indian towns for a few months anyhow. A very long list of potential 'givers' quickly emerged. If a person was well educated on the history of satel-

lite TV, the opportunity to spend a week-plus at Arthur C's feet was enough to spark their enthusiasm. If a person was less well educated, they at least recognized the value in having photographs taken with Arthur C tuning the dial on 'their brand' of satellite receiver.

The logistics of his second story balcony would determine that a dish no larger than 15 feet in diameter could go there; anything larger simply 'would not fit' and even a 15 footer was going to get in the way of his nightly telescope viewing habits. But the University of Moratuwa - now, here was a new opportunity. Ultimately, Jamie Gowen would gift-ship a 20 foot dish and Bob Behar would ship a 25 footer to Sri Lanka, ahead of the 'landing party', to be assembled as 'gifts' to the 'Arthur C. Clarke Centre' at the University of Moratuwa. The trip would officially begin in San Francisco (although most would start further east) and end 22 days later with a return through New York City - around the world. Our first leg would land us in Japan where two of the stellar local firms would host and toast us with incredible banquets and tours of their facilities; Uniden and Maspro. Then to Hong Kong for a couple of days of bargain basement electronics buying, on to Bombay in India where we would spend a night before flying to Madras in southern India for the final leg into Sri Lanka. It all looked so sterile on paper!

Carol Graba in CSD's Fort Lauderdale office 'volunteered' to make all of the reservations - air and lodging - and deal with the various visa and other official arrangements as well as providing logistical support. In Japan we would pick up additional Sri Lankan delegates from the Japanese home dish industry and in Hong Kong, two more including one from Nepal. The Coopers went as a family, as did two others including Canadian Roy Orvis who brought his children. The schedule had most of us attending the November SPACE show in Orlando and then heading out for San Francisco and points west. We promised in print "this will be the experience of a lifetime" and nobody who was allowed to go argued that point upon their return.

And all of this was underway simultaneous to the creation of Bill Young's new insurance + financing plan, Rick Schneringer's Nashville show in September, a 'side-trip' by a smaller group to Birmingham (England) in the same month and the start-up of CSD/2 with its inaugural August 15th issue (briefly named 'The Cooper/James Report'). Truly, "If this is Monday, we MUST be in Tokyo!"

And programming. Back in 1981, I had suggested in CSD that, "we will know when this industry has credibility because we are producing our own programming for the consumers." That was at a time when barely 25,000 new home terminals per year were being installed. The

threat of scrambling seemed distant in 1981 but a few of us saw the day when it would mature into reality. So at the Provo Retreat a day had been spent discussing a scenario involving various levels of scrambling by the programmers and extrapolating what this would or could mean to the sales of new home terminals. By mid-1983, with dish sales ripping along in the region of 15,000 each month, the time had come for some serious research into what would be required to create our own programming packages. We talked about this in CSD for August (1983) and the established programmers including HBO and friends saw in this discussion a serious threat to their own monopolistic control of programming via satellite. This was mostly a numbers game, then and now. A satellite channel (transponder) cost so much per month/year to 'rent' and to that one adds the costs associated with creating or procuring the actual programming itself. If the home dish industry was selling really big numbers, say 100,000 each month, then an 'industry tax' of someplace between $10 and $100 per home dish system sold (at the time of sale) could raise sufficient money to fund the programming. Provided of course industry dish sales continued at 100,000 per month or more. There was historical precedent for this.

When KDKA Pittsburg, WWJ Detroit and a handful of others began regular scheduled radio broadcasting in 1920, it was in support of the then brand new concept that if programming was to be heard through the airwaves, people (consumers) would go out and purchase radio receivers to listen. Westinghouse, which owned KDKA, saw a direct connection between providing programming and the manufacture plus sale of home receiving sets. On a roof of a building where Westinghouse built power generation equipment, the world's first 'broadcasting studio' was assembled in some haste late in 1920. Newspapers reported the event, merchants were quick to order and stock receiving sets (such as they were, extremely primitive initially) and the entire concept of broadcasting was off and running. Within three years, more than 300 additional stations began broadcasting, each one in support of the sale of radio receiving sets. Nobody at this point in time had conceptualized using the radio broadcasts for advertising purposes so firms such as infant Zenith in Chicago built radio stations for the simple purpose of giving set buyers something to listen to. It all made sense, for a few years, but as there were very few set manufacturers in North Dakota or Alabama, some other reason to build a local or slightly larger coverage radio station had to be found. Advertising filled that void.

By 1925, most stations on the air were either carrying advertising

as a reason for their financial investment in the station, or, in far smaller numbers the AM radio stations of that era were being operated as adjuncts to either an educational institution (such as WHA in Madison, Wisconsin) or some religious group (Aimee Simple Mcpherson in Los Angeles). An excommunicated doctor in Kansas built a radio station as a promotional tool to allow him to promote his 'goat blood extract' medicines to a listening (and he hoped gullible) public; Rick Schneringer would have been a regular customer! All of this provided fodder for discussion at the Provo Retreat and St Louis based David McClaskey, who never suffered from lack of vision, was 'elected' by the group to head up a task force exploring just how big the numbers had to be and more importantly, where the programming would come from to entice people to continue buying dishes. This was the beginning of the first serious effort to 'backstop' our viewing fare with replacement programming when (not if) the HBOs of the cable-satellite world pulled the plug on 'free viewing'. 1984 was promising to be a very intense year.

Midyear 1983 and our home base of Providenciales was exploding. A new 8,200 foot runway was nearing completion and the reason it was being built would change the entire island, forever, shortly. Club Med was coming, barely a mile 'down' the shoreline from our still pristine 250 foot of 'private' beach on the island's Grace Bay shoreline. Two major-brand airlines were looking at creating service to our banana shaped sliver of sand and coral. And Tom Humphries, ex-M-ACom and ex-SPACE President, had now been living there long enough to be taken for a 'native'. Our island, the entire country, was facing growth problems at every turn. In CSD for July I wrote about one of these challenges.

"Back on May 15th or so a young satellite engineer from Texas was scheduled to move to Provo. We have an office workshop set aside for him in the WIV 'Tower Plaza' and had begun to stock up on television sets, stereo gear and VHF-FM two-way radio repeaters and radios in anticipation. The chap was going to run the first professional electronics shop in the Turks & Caicos, minding the store from which equipment was being sold, keeping an eye on our almost fault free solid-state TV transmitters (9 now operating), the young stereo FM radio network (2 transmitters now operating), the nine TVRO antennas located at Tower Plaza, and be responsible for the installation and maintenance of the first two-way radio VHF repeaters in the country.

"He didn't show up.

"This creates an unusual position for somebody who is either

already in the television hardware/broadcast /two-way radio business or who can learn to fake it before they arrive here. I'm only kidding about the faking it part; the guy we need down here will have to hit the ground running.

"The deal we worked out with the 'no-show' was that Tower Plaza would provide him with a place to operate out of, rent free, for a year. We'd handle the government paperwork so he could instantly go to work here. He'd mind our store, we'd get him started in business in his own shop. He would need enough modern test equipment to align and maintain VHF two-way radios and color TV sets. He should also know how to maintain VCRs and if he happened to be a ham (radio operator), well, that would be pretty nifty since we went ahead and installed a raft of antennas at Tower Plaza so the 'no-show' could be 'on the air; with his own VP5 ham license, minutes after landing.

"We are not looking for an employee; this is not a solicitation for a job opening. What we are looking for is someone who wants to be in business for themselves, sort of under our wing for the first year or so, to help them to adjust to 'frontier living.' We'll provide him with loads of business, even giving free radio and TV advertising time to the new business so that the whole country will know the guy is here and operating.

"The 'no-show' figured that from scratch he was going to spend around $15,000 for the right test equipment and he felt he needed $5,000 after landing here to make sure he could live with safety until the bucks started pouring in from equipment repairs and sales. That sounds like a reasonable nest egg to get started, to me.

"There are several severe drawbacks about living here. Number one, you'd have to operate from a shop less than ten feet from Tom Humphries, past President of SPACE and now the only print shop operator in the Turks and Caicos. Humphries also dabbles in TVRO distribution and dealer activity and the bad part about being next to him is he swears at his printing press a lot. Loudly.

"The next severe drawback is that if you are a 'Ham', a VP5 'call' is the next best thing to being on a DXpedition. They line up in huge pileups to work you, especially from Europe, the Pacific and Asia. That's why I don't operate on ham radio much anymore. I don't like working these guys at 4 per minute. I'm getting too old to fill in my logbook that fast for very long.

"If you happen to be a sunshine and salt water nut, that's the next handicap. Humphries practices the 'religion' of Scuba diving and there are many parishioners on Provo. You'll have a terrible time deciding

you should work when only five minutes away is the most beautiful undersea reef in the world. A person without great resistance to temptation could be in big trouble here.

"If you have a closet filled with winter clothing, that's your next problem. Since, in three years, our coldest recorded temperature has been 63 degrees, you'll probably want to leave the woolen underwear behind. And that presents a storage problem.

"If you don't care for formal living, wearing T shirts, cut off jeans, sandals and carrying a half-empty cold brew around, you'll make it here. One guy who came down and saw Tom Humphries went back stateside and reported to Tom's former employer (M-A Com), 'he has turned into a 40 year old hippie, driving a beat up old pickup truck, loaded down with cold beer, diving gear and a bevy of English girls who didn't appear to have much on their bodies.' Of course you could be strong of will and resist the temptations that have been the undoing of Humphries. You could also stay in Hackensack."

Unfortunately, over the years through my eventual departure from Paradise-Provo in 1990, not one who succumbed to this 'invitation' was strong of will. We had drunks, we had people who couldn't handle sexual temptations, some who were on drugs and one who died on the job because of the wrong mixture of all of the above. Provo's electronics largely went unserviced or subject to the occasional illegal Haitian handymen who learned you could take five broken TV sets and rob parts one at a time until one of the broken sets came back to life with guess-and-by-golly replacements. They never really made a dent in the market. During a honorarium visit in December 2002 with John Ramsey, we spent most of our time at WIV trying to make microphones and video tape decks work - again. Even at the vastly profitable 21st century cable TV system, repair and maintenance was a yet-to-learn art and so far down the priority list that management found it easier to buy a new replacement than to have something fixed; including multi-thousand dollars pieces of studio gear.

$750 + 6 ZEROES

What had begun at wife Susan's Candy Cane Ice Cream Shoppe on Provo rapidly fell into an operational business plan by early September. Part-time Provo resident, insurance entrepreneur Bill Young, invited ('commanded' would be more correct) me to attend a two-day private conference held at his Fort Lauderdale waterside home. He told me, "Play the part of investigative journalist and do your best to find a weakness, a downside, to our satellite dish financing and insurance program." It was a role I relished of course.

There for the first time I was introduced to Joseph Gammon, President of the First National Bank of Wilmington (Delaware) and Kermit Zieg, Jr., top management for Commercial Credit Corporation. Young's dog and pony show, if not rehearsed, was all the more impressive because of his flawless knowledge of the mechanics of 'my industry' - home satellite dish systems. Young had named his new business, Satellite Financial Planning Corporation (SFPC), and as a total surprise to me I would meet the new Executive VP of the firm there as well.

First National Wilmington was a part of a huge conglomerate owned by Control Data Corporation; CDC was in 1983 the largest supplier of computer and high tech electronics to the US Government. The 'strings' running through Young/First National/SFPC were directly connected to gee-whiz guys like Texan Ross Perot. Young made sure I understood the 'depth' of what he had put together and as fast as I would raise concerns he would look at me with a twisted, mean, smile and mutter three letters: 'CDC'. He said 'CDC' with the same tone and emphasis as someone of the cloth might spell out 'G O D'. I got the message.

"We have $750,000,000 available for our use in the first 14 to 18 months" he began. I would later discover my Lands End briefcase stored calculator was not designed for a number this large - shy the last zero.

"If we look at this on a monthly pro forma, it comes to nearly $42,000,000 per month over 18 months. If we look at home dish systems selling for $2,000 installed, that's nearly 21,000 per month. At $3,000, 14 thousand. At $4,000, 10 thousand plus."

But there was no real 'per month' to the $750,000,000 limit - the money was there until it was all gone. I asked Joe Gammon what happened then and he smiled, said 'CDC' and then added, "This is just seed money - to get it started." Obviously, selling computers to government and industry was very profitable in 1983.

Tied to the SFPC/CCC (that's the commercial credit arm - not the data arm) financing package of course was the original plan - fully insured home dish systems which the dealers could sell as 'break proof' or 'if they break, guaranteed by a product insurance program'.

My job was to pick holes in their business plan which in approximately 8 weeks would be announced to the industry at the forthcoming SPACE Orlando trade show. I was their dress rehearsal, 'on the road in Phillie before opening on Broadway', as it were. The mechanics I heard (how the dealer would qualify a customer, how long credit approval 'should' take, the dealer's ability to 'fatten' the sale with projection TV sets, stereo systems, even refrigerators!) were too precise and too well thought out for me to fault. The plan would be available through any 'affiliate dealer' in any of the 50 states plus as a bonus, in Canada as well.

The matter of warranty was still troubling, however. To qualify for financing, CCC/SFPC required the buyer take the insurance-backed warranty package as well. First Nat Wilmington, CCC and CDC would make their 'points' (profit) on the loans. SFPC would make its dollars primarily on the insurance portion (I would later learn they were also 'in' for a percentage of the monthly interest payments as well). As we met (and ate - always a part of a Bill Young gathering) over two long days, one aspect did bother me significantly. Two actually; related.

It was the ongoing responsibility of the insurance gurus to rate and qualify which equipment would be suitable for the insurance program. Janeil dishes, to cite one that everyone knew had bad problems with short term rust and medium term decay, were very unlikely to make 'the cut'. In the vast universe of dishes, receivers, LNAs, motor actuators, modulators, and other parts one found in a typical installation, it was my guestimate that perhaps 60% of all brand/models

sold would not qualify. They were too shoddy, too weak, too something that translated to not being able to work properly (without insurance funded repairs) for a minimum of 3 years (or a maximum of five - the length of the proposed policies).

Of course if you were the Duschane brothers who manufactured and sold Janeil dishes, you might revaluate the way your dishes were designed and make changes to correct their short-term rust, medium-term failure liabilities. By the strangest of coincidences, roughly half of the firms who now were 'gifting' Rick Brown with as much as $2,500 each month to 'protect' the industry from HBO raids were building 'Janeil-class' equipment. In other words, "crap-in and crap-out."

I feared that the Duschanes and others building inferior equipment, such as Bud Ross of Birdview, would shove Rick Brown into a corner and demand that he do something to 'stop this idiocy' before it got out of hand. I was not wrong.

With Zieg, Gammon and Young, I asked repeatedly for a list of the products which the underwriters had already rated with approval. No such list - not for me, not for anyone 'until we get to Orlando'. Actually, there was such a list but not a very complete one, at that point in time. But as much as they needed me, they also needed me 'innocent' and unable to prematurely give away that very valuable commercial information before they were ready to do so. Which brought me to a major surprise.

Larry James, my co-editor in the CJR Report which had been launched only weeks prior, was I thought in Nashville covering the Schneringer Labor Day show. When he walked through the door at Young's Fort Lauderdale palace I was quite shocked.

"Bob, you know Larry," began Young in mock seriousness. "He is my new Executive Vice President of SFPC." Well, blow me over with a breath of air and count my toes.

"He is what!?" gasped I.

If I thought SFPC was going to be a difficult problem for some in the industry, such as the Duschanes, I now had a mental flash of being drawn into a whirlpool from which there might be no escape.

Larry had joined Peter Sutro at Patmar Technologies only months prior, and then with Peter's complete understanding added his responsibilities as CO-creator of CJR a month back. I liked living in the fast lane but this was the 'passing lane for two or more adults'. Not good.

My first protest headed me towards losing Larry as a co-editor for CJR. I was not prepared to create his material each month, not in the near term future anyhow, what with the SPACE Orlando show and

then the three week expedition to Sri Lanka staring me in the face. So I backed off a half-step.

"There must be an understanding, if not in writing then between solemn co-conspirators," I began. "Larry's involvement in SFPC has to be totally at arm's length to CJR." It was going to be far easier to 'say' than implement. What worried me here was this.

Some percentage of the products on the market - only Bill Young knew the exact number and identity of each - were going to be 'missing' from the SFPC 'approved list'. We would be at Orlando's SPACE show when the list might first become available. Logic told me the Dushane brothers would be missing from the list meaning they could not get financing for users of their antennas. Now multiply that by ten, twenty, fifty, one-hundred supplier products and Orlando's introduction of the SFPC package would turn into a blood bath. Something I neither needed nor desired prior to the days-later push off to Sri Lanka.

I knew exactly what would happen (and would not be disappointed with my negative projections). The entire industry would arrive in Orlando, SFPC would release the 'approved list' and then bang. Make that BANG! All hell would break loose. Some, such as the Dushane brothers, could already guess they were not going to make the list. Actually, almost any firm that rated poorly in the CSD June published dealer/distributor survey could expect to be rated more or less as the CSD readers had rated them. The ratings guys had at one point told me, "your CSD dealer and distributor survey forms will count for roughly 50% of our final analysis." They meant the raw forms, not any tabulations I had done as they had their own methodology and system for arriving at 'numbers'. That didn't bother me - I was an amateur when it came to crunching numbers, these guys earned 200k a year doing it for a living. Their totals counted, mine were scratch sheet doodles.

So - projected I, in a fit of depression - there we are in Orlando at what should be an upbeat trade show, a really first class trade show deliberately structured to be everything STT shows once were and Schneringer's STTI shows no longer were. And some major portion of the exhibitors are faced with explaining why their product(s) are not on the approved list.

First, I saw me as the scapegoat. That's OK - I had resigned myself to the possibility that our CSD advertising would drop, perhaps by as much as 25%, when firms that missed the list decided that I was the responsible person. If not for creating the list, at least for conceiving the situation that underpinned the list. If death threats from David

Wolford had been unnerving before Orlando, I could be facing much worse there. Then there was Larry James. Not only was he 'still' co-editor of CJR (the "J" in the publication name was for James), but as of 1 September (days prior to my Bill Young 'private seminar') he was also the Executive VP of SFPC.

"Larry, no matter what you say or how you say it, the Duschanes and others will believe you have the power to change their rating. How will you handle that?"

Young answered for him, something he would do with regularity until he was comfortable Larry could stand on his own two feet. "Every product not on the list has or will have a set of recommendations done by the insurance raters explaining why their product missed the list. All they have to do is correct the defects we find, and they are on the list. Being off the list is not permanent, it is for 'now' until they fix their rusting bolts and unreliable power supplies."

Me. "How about Larry in the next 8 weeks talking with those firms who will not be on the list so they first of all have advance warning, and two, have the time to correct their faults before we all get to Orlando?"

Young. "Good idea, but no. The industry leaks like a sieve and everyone like that Larry talked to would talk with 50 or 100 others. It is far better to hit everyone at the same time with the list - and that includes you as well!"

I reluctantly agreed, knowing I was pushing a dead horse up a steep hill.

Me again. "OK Larry, how you conduct yourself will be the determining factor on how long we spell CJR (Cooper James Report) with a 'J' - agreed?" To save you the suspense - CJR would meld into CSD/2 in the not far distant future. But not because of anything Larry did, directly.

I was left to my own skills to create a report about all of this, appearing in the October CSD - one month ahead of the Orlando SPACE show. The Duschanes and many others read the October 'Coop's Comment' and promptly ran for Rick Brown's private, unlisted, hot line number. The animosity was just beginning.

Washington based Brown did what any capable attorney would do under these circumstances; look for 'dirt' involving Bill Young. There was some. The State of Maryland, well known for creating Spiro Agnew as Richard Nixon's VP and infamous for some mighty strange shenanigans in the way they conducted their business affairs and regulation of industries such as insurance, had a 'record' dealing with

Young. It was not complimentary but it was also not legally damaging. It was one thing to be investigated, even charged with some prohibited activities, and quite another to be indicted and charged and sentenced in a court of law. Young's problems stopped at the investigation level, went back several years prior, and he had pretty much told me about them before we ever got into the SFPC plan. Rick Brown, attorney Brown, saw some ammunition here and he wasted no time feeding his new-found knowledge back to his inner circle of $2,500 a month supporters. As a skilled litigation attorney, the manner in which he presented what he dug up was far more condemning than the actual information. But it had the desired affect - most of the SPACE OEM Board Members arrived at their own Brown-led conclusion that Young was a shyster, a scalawag, and if he had not 'suckered Cooper into a scam' then Cooper himself must be in it up to his armpits. Thanks Rick.

Some of these Board Members contacted me for my version and after hearing several reports I suggested in a telephone call to Brown that he at least should complete his 'study' by extending to Young the courtesy of holding a face to face meeting with the man. Brown disagreed, then finally agreed under pressure when I pulled out some long buried reasons why he should do this if he wanted to remain my 'friend'.

According to both sides, the meeting went badly. Through Larry James, Young had received reports of Brown's investigation of his past record, and after discovering I would not discuss the matter with Young until the two did meet, we reached an impasse. One of several that would ultimately make it impossible for us to continue spelling CJR with a 'J'.

Young told me Brown was threatening and vindictive, totally uninterested in learning how the SFPC plan worked or to even evaluate what $40,000,000 a month would mean to the sale of new satellite dishes.

And Brown told me Young was, "an overweight high pressure salesman" whom he instantly disliked. "He is flippant, has a total disregard for the position of SPACE in the industry, and basically told me, 'We can do this with or without your approval'."

These two were unlikely to go on any overnight camping trips together.

Brown would next suggest to the Orlando show committee that the SFPC position on the program, which I had negotiated before the anger began to flow, be cancelled. His reasoning was, "If we allow this

presentation to appear, it will carry the weight of SPACE involvement or at the least having our 'stamp of approval'." Naturally Young, when told of Brown's proposed plan, saw red. Several shades of red. And he put Larry James to work on the telephone explaining what 'might happen' if the SFPC presentation was cancelled.

It was at this point in my life that I created 'Coop's Mandate Number One for attorneys (all attorneys)'. It went like this. "From this date forward, when an accused person is represented by counsel, if that person is found guilty as charged, the attorney shall suffer the same fate as the accused." This stemmed from a well worn oft-repeated phrase handed down from the era when Greece ruled the world. "First, we eliminate the attorneys."

Cooler heads eventually prevailed and a compromise was reached. When SFPC appeared on the official program in Orlando, a formal prologue to their presentation would include a statement written by Attorney Brown which disclaimed any approval or support for the plan from the trade association. The text of the statement was of the same ilk as you see preceding some R rated movies in theaters or on television. "The following contains graphic violence, sex and other adult themes. Parental guidance is advised." And to soften the impact, the same statement was read before each SPACE Orlando session where a supplier was involved in the actual material being discussed. "Appearance at this seminar does not constitute an endorsement of ..... ." Indeed.

Two firms arranged for 'private presentations' from SFPC prior to the formal opening of SPACE Orlando. Intersat, headed by the unrestrained mind of David McClaskey, and Paraclipse, the 1983 front-runner in quality antenna production headed by Californian David Johnson, each invited their dealers to closed-door sessions in advance of the formal prologue version of the SFPC show 'n tell. When SFPC did the open-door version for attendees, I asked those who had come to Orlando 'primarily to attend this session' to raise their hands. Counting momentarily raised hands is a dangerous way to conduct a survey but I and others quickly decided something like 750 dealers were there for that avowed purpose. In a room with seating for 1,000 (and filled to the rafters) that was pretty impressive, even to SPACE's Brown. Moreover, as the only trade press coverage of the SFPC plan to that point had been in CSD, it carried a subliminal secondary message; angry at me or not, Attorney Brown still had to contend with the switched-on readership of my publication. Brown's personal version of "first we eliminate the attorneys" was slightly different. "First we eliminate Coop's Satellite Digest."

Not everything about the SFPC plan drew accolades. My concern about a firm being on or off 'the list' was premature. If there was a 'list' available at Orlando, it was not distributed; perhaps because I had made such a show of concern about the downside of the list. Larry James confided to me, "We will scrutinize the equipment proposed for each new application and where we see problems, go back to the dealer privately to suggest he substitute another antenna or another receiver for the one proposed." That seemed like a choke point in processing applications to me and I said so to both James and Young.

Young. "Perhaps, but it is better for right now to go slow than to start a series of brush fires from coast to coast." It was going to be both fast and slow. Young had decided that application forms, to be used by the dealers for submission to SFPC, would not be handed out in Orlando. Dealers signed up there, went home and waited for Fed-X to deliver their formal packets of information including a pad of application forms. That angered many dealers who had every expectation of returning home and submitting applications the very next day.

Young again. "I want volume for this to work but I don't want 1,000 choking the pipe line on day one. First we walk, then we trot and finally we run." If nothing else, the man was playing it cautious.

Two weeks following the Orlando show SFPC was hitting 50% approval on applications submitted. I thought that low and Young agreed.

"I think we have a bubble here. Dealers who had willing but unqualified customers raced back with applications for people who were simply not credit worthy. We have a cut-off at $15,000 take-home pay per year, one income or combined if both work. And of course they have to be purchasing a home - if there is no mortgageable property out there, no loan. Folks with a prior history of credit problems won't get through the (CCC) approval process. I think the percentage of approval will improve once we get through the early entrants and dealers become more conscious about whether or not their clients are folks worthy of having a loan in the first place."

SPACE Orlando was the second trade show for the association, the former being in Omaha 15 months prior. In a sense, this is not a totally true statement for way back in April 1981, SPACE's Rick Brown had been the guiding hand behind the Washington (DC) show which attracted Congressmen, Senators, FCC officials and even Ralph Nader to the podium. Brown quite correctly saw the trade association sponsored shows as fulfilling three needs. First, provide a showcase for the latest technology - because that is what his big dollar supporters demanded

for their investments. Second, allow new comers the opportunity to receive appropriate support and even attend professionally administered training courses complete with exams and certificates for successful completion; as long as 'his office' was in no way burdened with this activity. And finally, the part that drove Brown the hardest - provide an opportunity for the trade association to 'build bridges' to people of influence in the hope that by doing so, his 'job' of 'keeping the industry legal' would be more productive.

SPACE Orlando brought several new and certainly influential faces to the podium. Ted Turner was one of those, Senator Barry Goldwater another, Astronaut Gene Cernan yet a third. All of this was to Brown's credit and SPACE's benefit. The Arizona Senator was preceded to the podium by Turner who found it quippable that he was 'sharing' the 'after dinner' podium. Those who knew him well correctly saw his remark as a show of displeasure that he, 'the great one', had to share with someone else - even if that person was the Senate's most communications literate individual.

Goldwater was clearly the hit of the show although Turner had his 15 seconds of spotlight. WTBS had taken a small booth on the exhibit hall floor and he and then-wife Jane (no, not 'that' Jane) had slid in mostly unannounced from their private jet to occupy the WTBS display.

"Hey - come quick," an interloper screamed, bursting into a SPACE Board meeting. "Turner is here and he is sitting in the WTBS booth answering questions from dealers!"

Rick Brown, Bob Behar and I made a hasty trip to the exhibit hall floor and sure enough, there he was sitting in a folding chair like any two-bit exhibitor offering goodies for sale. Before we could reach him, a crowd of the always curious joined behind us on the run. A memorable series of photos resulted as Turner and I shook hands.

Turner to me. "There seems to be some confusion as to whether your TVRO was first or not."

Me: "I recall there were two licenses granted by the FCC; you got one to haul a TVRO around on a trailer so you could watch the Braves games while you were busy beating the Australians in Newport. I got one so I could start this industry."

Turner in response: "Yeah. Mine cost $20,000 and it was a monster. We sure showed that FCC, didn't we! Say, what did YOU ever do with yours, anyhow?"

The last photo shows me in uncontrolled levity and the caption has Rick Brown mouthing, "Turner sure knows how to hurt a guy!"

As poignant as this particular photo set may have been, the most

dramatic of all was reserved for a four color montage appearing on CSD's December (1983) front cover. Setting the scene. Senator Goldwater (may he rest in peace) was the number one communications - bright individual in the US Senate (plus the House). He owed most of this savvy to a lifelong love affair with Ham or amateur radio which from pre World War One onward until at least the 1970s was the self-help training ground for virtually everything to affect telecommunications. Just as Dana Atchley Jr rode his ham radio enthusiasm to the Chairman of The Board at Microwave Associates, thousands of other hams had turned a spare time devotion to electronic parts and the mystery of the unknown into highly successful and occasionally profitable ventures. Name any aspect of telecommunications from the first broadcast station (to become KDKA, operated by amateur Frank Conrad, 8XK from his home near Pittsburgh) through the development of home dish systems (Birkill, Howard, Coleman and Cooper - all licensed 'hams' followed by Behar, Hatfield, and dozens more) and you will find at least one pioneering 'amateur' involved. Barry Goldwater, amateur K7UGA, was cut from that mold and his Arizona home was a focal point for western amateur radio activities.

Brown wanted the Senator on hand because he was totally familiar with home dish systems (and owned one) and Brown believed that when (not if) legislation that could 'kill' or 'nurture' home dishes finally escaped to the floor of either the Senate or the House, Goldwater's expertise in this technology arena would play a part in the outcome when votes were tallied. To make the appearance even more powerful, SPACE arranged for a group of Washington notables to go before a video camera in Washington to record 'accolades' to Goldwater. Hours before the scheduled Turner speech, Brown handed me a shopping bag filled with tapes and a request. "Go through these tapes (there were 12 from as many notable persons), select some remarks from each and 'splice' (he meant edit) them together on one tape that we can show on the large Nova projector to the crowd."

The remarks were akin to a Hollywood Roast by movie stars, picking in a gentle way on someone whom each admired and felt warm fuzzies about. Vice President George Bush, Senators and Congressmen all of whom considered Goldwater 'the guru for telecommunications in the Washington world', said nice things about Barry. Senator Danforth (Missouri) quipped, "This past summer I sought Senator Goldwater's advice on a matter relating to the TVRO industry. The next month I found myself featured on the front cover of SPACE's Satvision member publication. I hesitate to think what might of happened to me if I had

opposed Goldwater on this issue!"

The crowd of satellite manufacturers, distributors and dealers quickly felt their own warm-fuzzy thoughts about Senator Goldwater and as the organiser Brown once again regained the support from an industry that had become increasingly concerned about his ability to 'lead'. For the moment, he was home free.

The Goldwater classic photos. And the set up. As a home TVRO user, the Senator was already capable of grabbing a remote and making a satellite receiver do its thing. And as he wandered throughout the exhibit floor with a crowd that progressively grew larger, he stopped and asked questions about what he saw and on several occasions did covet the offered remote to push buttons. His escort through the floor was Astronaut Gene Cernan (the last man on the moon) who of course attracted his own crowd of well wishers and folks anxious to have their photo taken with a genuine American Hero. Cernan was in Orlando because he had become a part of the advisory team guiding David McClaskey's Intersat. Cernan of course had a financial stake in Intersat and McClaskey was capitalizing on the Astronaut's public image.

The four CSD front cover images.

Panel number one: Goldwater, McClaskey and Cernan. McClaskey with arm outstretched is urging the Senator to step into his booth to witness something. "Senator, may I demonstrate our satellite TV receiver?"

Panel number two: The same trio, Cernan with a concerned look and McClaskey with equal apprehension are staring at an off-panel TV screen. The Senator with finger on a remote control button has eyes glued to the remote in McClaskey's hand. McClaskey again: "All right baby, do your thing."

Intersat is, for the first-time in public, introducing a satellite TV receiver and satellite dish system totally controlled from the remote in David's hand. It seems pretty ho-hum in 2006; in 1983 it was a crowd stopper.

Panel number three: McClaskey looks like Sylvester the cat who has swallowed Tweety. His eyes are a dead give away of his inner belief that, "yes, there is a God and he is smiling at me right now!" Cernan's facial expression suggests he is Sylvester's nearest and dearest friend. This may not be as satisfying as walking on the moon, but it is close. The Senator's face is pure puzzlement - a man amazed by what he sees. He reaches for the keypad in David's hand and utters, "You mean that little hand held control does ALL of that!"

Finally, panel number four. Goldwater has his nose pressed to the

front of the stylish but totally devoid of appurtenances Intersat IQ-160 receiver. His hand is stroking the front of the receiver searching for something. He speaks. "Where the hell are the knobs?"

Intersat's receiver, more than 18 months in the design and redesign stages, has landed; not on the moon, but in an over crowded SPACE exhibit hall. And G O D, the one man in the United States you would most wish to impress, has just given it his complete stamp of approval. For David McClaskey and corporate board member Gene Cernan, life had suddenly taken a turn for the better. Their IQ-160 and follow-on products were now assured of a significant share of market for the next 12 months as the four panels on the front cover of CSD so prominently announced to the entire satellite world.

Many CSD front covers through the years had a major 'impact' on an individual, or a company. None, perhaps, did so much so quickly as December 1983 for Intersat. 'Framed' as he was between Senator Barry Goldwater and Astronaut Cernan, with the obvious glee of a man swallowing the forbidden canary, David McClaskey became an instant industry celebrity carrying with his new status exceptional sales for his innovative satellite receiver. For virtually every other firm in the industry, it was now 'catch-up' time as each attempted to equal or better the infrared remote control features of the IQ-160. The name, by the way, was a reflection on the 'intelligence' of the receiver system.

Sri Lanka or bust

(Sir) Arthur C. Clarke had become a frequent communicator with me during the five year period leading up to the Sri Lankan 'Expedition'. And a close and careful reader of CSD. His guest book (those who 'dropped in', as incredulous as that statement might appear to be, on his home at 25 Barnes Place, Colombo, Sri Lanka) was a reflection of both his world-wide fans and those who held him in special esteem. He is the sort of correspondent whom when finally meeting in person for the first time you feel you know, intimately and closely. One of his notes to me, previously recited, said:

"Senator (name of a well known US Senator in 1983) was here for dinner last week. Your name came up in conversation and he remarked you are being watched very closely by various prominent figures in the US Government; tread carefully."

Such was the intimate and oft-offered advice of a man whom my wife Gay would observe, after a subsequent visit in 1994, "You know, here I was sitting and talking affectionately with the brightest human being I shall ever meet in person and we were debating the underlying traits of various characters on Star Trek!"

The Sri Lankan expedition was an act of great devotion and faith on my part. I was a fan of Clarke's writings but not one who would go out of my way to acquire each new book he issued, which by 1983 numbered in the dozens and growing at an alarming rate. He was 64 in 1983, the eldest son of a man who returned wounded from the battle fields of France to Great Britain after WWI to a family bordering on the edge of collapse. Those who know Arthur well realize his greatest skills are as a mathematician while his interest in science was, through

his formative teen years, primarily an exercise in proving (or disproving) various postulations he could conjure onto a chalk board at his rural Mineshead (UK) school.

Something inside of me, as early as 1980, told me he was owed a debt by those who would now and in the future be profiting from his mathematical postulations that led to his 'discovery' of the geostationary orbit plane above the equator. It is difficult to earn credit, even limited recognition, for 'discovering' something that you cannot touch, feel, or place into a bank account. The geostationary (now appropriately called the 'Clarke') orbit belt was and remains one of those ephemeral concepts that initially only makes sense to a handful of enlightened connoisseurs of the theoretical. Clarke was not, is not, Albert Einstein and this was not E=MC Squared but on a practical level the human impact of the Clarke Orbit would ultimately affect essentially every man, woman and child on planet earth. I leave it to future centuries to judge which was the more important to mankind.

The concept that he should be 'rewarded' was an 'easy sell' to the industry. He had neither patented nor copyrighted 'the discovery' and in fact had he done either the term limits would have expired before the first geostationary orbit satellite was deployed by America in 1969. For most participants in the exploding home dish industry, Clarke was the ultimate hero. His name was synonymous with every aspect of the new industry, he lived in a faraway mysterious-to-most location making the trip itself someplace between exotic and once-in-a-lifetime. Moreover, the traveling companions were likely to be 'amusing' as well. Working out the logistics of gathering up people spread all over North America (Canada, USA), at the San Francisco International Airport at an appointed time, to board a JAL plane for Tokyo, was the simplistic chore. Carol Graba, in her 'free' time, managed to book all 25 of the North Americans from their home to San Francisco and then with the assistance of a Fort Lauderdale travel agency work out transport, lodging, visa forms. To this she added three more joining us in Tokyo, two more in Hong Kong for the balance of the journey. Some were single and would act like it; others were married and would act single. Still others had families along and would act 'parental' for the malcontents who insisted on acting single.

My primary concerns were as follows. (1) Somehow get everyone who went with us back home safe and sane. (2) Avoid any international incidents requiring intervention of the nearest US Consulate. (3) Upon arrival in Colombo, not turn the event into a three-ring circus that would in any way embarrass Arthur C. Clarke. (4) And

finally, as we were preceded by several tons of equipment shipped over by ADM (a 20 foot antenna), Hero (a 25 foot antenna), Paraclipse (a 16 foot antenna) plus receivers from Avcom, USS Maspro and LNAs from a variety of sources, turn the anticipated equipment pallets into three complete working systems for Arthur and the University of Moratuwa before leaving. Our visit would coincide with Clarke's scheduling of the Grand Opening Ceremony for the new Arthur C. Clarke Centre for Advanced Studies and this event would be formal, filled with decorum, and unlike anything the North Americans had previously experienced. All of this was terribly gutsy fraught with every possible danger including many that even my fertile mind did not conjure.

It happened that Arthur C was massaging two new books when we arrived ("How The World Was One - Beyond the Global Village" and "Ascent to Orbit - The Technical Writings of Arthur C. Clarke"). He found it timely to include a mention of our visit into each book, and in How-The-World created a full chapter (33) about the home TVRO industry which he called "Coop's Troop," from which I now quote.

"Although in my 1945 paper I had suggested that reception from satellites would be possible with parabolic dishes as small as a foot in diameter, the first ground stations were a hundred times that size and cost millions of dollars. But as the transmission power of the satellites steadily increased, and detectors grew ever more sensitive, ground equipment became smaller and cheaper. By the late 1970s it could be afforded by many US households - and a new industry was born.

"At first, only a few enthusiastic amateurs, the lineal descendants of the 1920-1930 radio hams, got into the act, building chicken-wire dishes in their backyards and bread boarding their own circuits. Soon, however, complete TVRO (TV Receive Only) systems were on the market for a thousand dollars and upward. The luxury models had quasi equatorial mountings, like telescopes, and could be motor driven from horizon to horizon to point automatically at any satellite hovering in the geostationary orbit. By the early 1980s. there were dozens of program channels - news, entertainment, sport, and even a little culture - falling from the air for everyone to enjoy.

"One of the chief promoters - indeed, pioneers - of home TVRO was an energetic journalist/electronics buff named Robert Cooper, who began publishing a monthly magazine in 1979 full of gossip, technical news, and advertisements. Coop's Satellite Digest was essential reading for anyone in the field, and in its brief but hectic lifetime it chronicled the rise and (temporary) fall of a multi-billion dollar industry.

"In 1983, home TVRO was still booming, and Bob Cooper organized an amazing feat of logistics for which I shall always be grateful. He persuaded three of the principal manufacturers to donate their complete TVRO units to me, and to come to Sri Lanka to install them. A 16 foot Paraclipse (only the second of this size ever made - the first went to Florida and the Kennedy Space Center) was erected on the balcony of my house in Colombo. A 20-foot ADM dish was somehow levitated three stories to the roof of the University of Moratuwa's Electronics Department. And the massive 25-foot Hero antenna, with the help of a large crane, was erected outside the Arthur Clarke Centre for Modern Technologies, next door to the university.

"Seven years later, virtually all of this equipment is still in use, despite monsoon storms and occasional lightening strikes. The 25 foot dish was particularly valuable during the Gulf crisis, relaying CNN reports to the national (Sri Lankan) TV network. And thanks to the 16 footer on my roof, I had access to Russian, Indonesian, and Chinese programs - as well as much of the traffic through the Indian Ocean Intelsat birds."

So obviously we made it, arrived safely, and completed our appointed tasks. How this happened, the trials and tribulations of the journey and the complications encountered at every stop along the way was fodder for one of my favorite issues of CSD; January 1984. There, on the front cover, standing in front of his 16 foot Paraclipse dish on the second floor balcony of Arthur C. Clarke's Colombo home with Arthur at his side, Paradigm/Paraclipse CEO David Johnson. From his first attempt at building a commercial satellite dish unveiled at SPTS Omaha in mid 1981, to sharing 'the podium' with the father of satellite TV in Sri Lanka barely 27 months later, was a quantum jump for the youngster from Redding, California. Moreover, he was only months away from being 'elected' (as best SPACE's Rick Brown 'allowed' such elections) to the post of trade association President. Retrospectively, it will probably come as less than a surprise that within another three years Johnson would mysteriously disappear from the face of the earth for several months to resurface driving a battered 1955 ex-power company lineman's truck off of a barge onto an island in the Caribbean adorned by a face altering beard, shoulder length hair and a buxomy, vibrant hormone driven blonde headed woman. This duo would occupy my annex building apartment for more than six months while stateside the remnants of the home dish industry would speculate about his whereabouts and activities. But in January 1984, David Johnson was king of all he surveyed, or so watchers believed.

Stop overs. Japan was first and there USS Maspro's Doug Dehnert, who had pioneered the act of taking a satellite system design to Asia for manufacture and refinement, hosted us through his Japanese cohorts (appropriately known as Maspro). Dehnert's northern Minnesota (Thief River Falls) base was an unlikely center of satellite technology but in fact his designs turned into products by Japanese Maspro were as innovative as David McClaskey's IQ-160 design that stopped Senator Goldwater dead in his tracks. Dehnert was a cautious, quiet man of mild manners who once he warmed to you would expend 110% energy at any task he felt you needed completed. He possessed the uncanny and all-too-rare ability to see through hyperbole to the center of any controversy; he would have been an excellent nominee to a position of judge in virtually any court in the land. His wife Polly (Porry as the Japanese insisted on addressing her) and my wife Susan became near and dear inseparable friends on the 3 week sojourn which cleared the way for Doug to assume the role of my 'shadow cabinet'. Indeed, there were many occasions between San Francisco's departure and our return via New York City when two or more 'emergencies' would be occurring simultaneously. By the time we cleared our first Tokyo stop, I knew that if I found myself over loaded with demands, I could simply nod Doug into the fray and he would resolve it as if my twin brother while I continued dealing with the companion disaster-of-the-moment. I had many close friends (such as Bob Behar who of course was also on the trip) but almost none had my total and complete confidence as Doug Dehnert would earn. In a short phrase, he knew right from wrong, saw issues as I saw issues, and while we would often have heated debates about topics of mutual interest, not once did we ever have an argument about a basic tenant of life. Long after the home dish industry went into meltdown, following HBO's scrambling, Doug and 'Porry' continued to be a part of my Provo life including sharing Christmas with Patti and I at our Grace Bay home right up to the last Christmas I spent on the island (1989). It would be sage advice from Doug imparted to refugee David Johnson after the latter had degenerated into a psychotic sex fiend with his blond headed companion on Provo that would finally send David back to the states to face up to his own demons in California.

But none of us could foresee those events in late November and December 1983 as we labored in a monsoon rain ankle deep in oozing mud while ripping open wooden crates filled with antenna parts. Arthur C had suggested to me, "late November onward, to miss the monsoon season." This particular year, he was off by a few weeks. The

entire schedule, right down to and including the Sri Lankan government specifying the formal dedication ceremony for the ACC Advanced Study complement to the University of Moratuwa, had been done to accommodate our 'expedition'. Arthur first asked, "When can you come?" and I in turn had worked out a schedule that fit the round-the-world jaunt into the busy fall schedule of activities culminating with the SPACE Orlando show. Working forward from Orlando dates, we arrived at a period when Johnson, Dehnert, Behar, and nearly 30 others could in fact 'get away'. That in turn caused the Sri Lankan government to proclaim a date for the dedication, allowing sufficient time for us to arrive, unpack the equipment crates, assemble the antennas and be 'tested and smiling' to take our own place in the dedication ceremony.

Arthur C. Clarke wrote, "Getting all of this equipment round the world and safely into Sri Lanka was a nightmare, but by what now seems not one but a whole series of miracles, everything arrived at the right place at the right time."

Not quite.

It took me 15,000 words to hit the high spots of these 'miracles' in CSD for January 1984 but even with that lengthy detail, not all of the fun and games that ensued were properly revealed.

When we arrived in Colombo, the capitol city was still shaky from a bold guerrilla attack by the Tamil Tigers. All around the appropriately named Palm Beach hotel, where we headquartered, were burnt out ruins of stores, offices and businesses targeted by the northern Sri Lankan rebels. Attacking the island nation's largest population center had been a carefully planned, daring move which turned the city of 2.2 million upside down; locally similar to the bold attack on New York City and Washington in September 2001. It also colored everything we did for the ten days on the ground in the country.

Jamie Gowen's 20 foot ADM antenna had been shipped by sea and air well ahead of our arrival. Freight agents traced it into Colombo but there it disappeared; totally. More fortunately, David Johnson's 16 foot Paraclipse prototype was sitting in Colombo but a frightened bureaucrat unaccustomed to dealing with 'satellite antennas' (there were none in the country at the time of our arrival) had filed the paperwork away in his 'too hard to do' basket which effectively meant the 1,000 pounds of steel and aluminum were 'lost'. Bob Behar's 25 foot Hero antenna, perhaps because Behar was the master of getting huge shipments of heavy parts to virtually any destination in the world, was right where it was supposed to be - dumped by a truck driver in a sea of mud directly in front of the entrance way to the new ACC Center.

Yes, some essential wooden crates were missing but Behar like Dehnert had a marvelous mind for taking 1952 DeSoto fenders and reclaiming them as antenna parts under the guidance of a five pound ball peen hammer and an acetylene torch. The kid-from-Cuba made us all believers as he coerced, directed, led a team of neophyte Sri Lankan laborers wallowing in a sea of mud and pelted with golf ball sized rain drops driven by fierce winds to not only build his 25 foot antenna but as Arthur dubbed it, "Miracleize unrelated cast - off pieces of steel into missing parts required for the assembly." Behar needed a five foot high concrete base pier or pad for his antenna. Building something this tall, with a circumference of over 12 feet, one quart of hand mixed concrete at a time, was to say the least 'labor intensive'. No, Colombo did not have concrete delivery trucks nor the technology in 1983.

I watched in fascination as Arthur went to work on the telephone hours after our arrival to begin the search for Johnson's missing 16 footer and Gowen's missing 20 foot antenna. Johnson's turned out to be a minor hitch - everything coming into the country since the Tamil Tiger attack on Colombo was now being quarantined for a detailed extra inspection. The wheels of commerce had ground to a halt as barges loaded with flour and rice, air freight destined for hospitals with needed medical supplies on board, were being piled up in huge makeshift quarters until someone with authority could individually inspect each item. Their concern was that hidden in shipments labelled as medicine or rice there might be Chinese or Czech sourced weapons destined for the Tamil Tiger rebels. A local newspaper report convinced me they had some justification for this caution. A 20 foot sea container loaded with 'automotive engine blocks' turned out to be housing rocket propelled grenades (RPGs) and short range artillery shells designed to blow up tanks and armored vehicles. And it was not addressed to the Sri Lankan army.

It was difficult to feel totally comfortable in this atmosphere, or to concentrate on the significant tasks ahead with a running clock that left barely a week to get from nothing done to everything completed. The abundant diversions stole approximately half of our 30 person work force for several days. Diversions? Sri Lankan lasses who descended in droves (typically quartets for reasons I never fully understood) on every male attached to the expedition. Jamie Gowen was sure he had died and arrived in heaven on another planet. His secret 'goal' for the trip was to find a conjugal partner in each of the countries we visited; he could be forgiven for missing the target only in Thailand since our airplane was on the ground there less than 90 minutes and we were

allowed to deplane only because the passageway where we circulated was lined on both sides by ugly chaps carrying Russian-made burp guns; none of them 'looked conjugal' to Jamie.

Moreover, his antenna was well and truly missing. Even Arthur could not locate it, although the paper trail was sitting on the desk in front of him as he placed call after call to increasingly higher individuals in government. Three days passed, and no ADM antenna. This particular dish system was to be elevated (Arthur called it 'levitation') to the impossible-to-reach third story roof of the Department of Engineering at the University. But of course 'levitating' it would have to await finding it.

In desperation with the clock ticking while Behar was cutting up automobile fenders and bridge girders to refashion a steel antenna mount to replace the parts 'lost in transit', a chance visitor to Arthur's home at 25 Barnes Place, a military officer highly placed in the Sri Lankan army, came to our rescue.

"Let me deal with this," I recall him saying. Dehnert asked Arthur if he might be allowed to go along with the officer, "to properly identify the shipment." Gowen at this point, in between periods of assisting Behar rebuild his dish system from local rusting hulks and carving new notches on his walking stick, was no place to be found.

Several hours later a phone call. "We found it," announced Dehnert, "buried deeply in the hold on a barge in the harbor." In fact, the barge was loaded with munitions, for the Sri Lankan army, and somehow the wooden crates clearly and plainly marked as to content and destination, had been confiscated in a panic sweep by the military while emptying several warehouses of army-intended munitions. The Tamil Tiger attack immediately sent the local army into a defensive mode. All government munitions warehouses had been emptied, the contents hauled to floating barges tied up far enough off shore so that their detonation by whatever cause would not wipe out an entire neighborhood.

Finding the shipment was trick one; getting it released by the military, and ashore, was quite another matter. But armed with his knowledge, Arthur telephoned the Sri Lankan President who immediately interceded. Now Gowen would have to zip up his fly and go to work.

The rain occasionally stopped for more than an hour or two. Behar's tropical Cuban heritage equipped him, if reluctantly, for this constant attack of the elements but few others fared as well. Videotape shot by my son Kevin and I throughout the ordeal plainly shows the frustra-

tions of trying to do something we all believed important so as to not disappoint our host and the country which had turned out enmasse to welcome and assist in whatever way each might contribute.

Each of the three antennas had its "Bridge on the River Kwai" to cross although no two were alike. Johnson's Paraclipse did not fit very well on Clarke's second floor balcony which created a scenario with people assembling the antenna suspended twenty feet above ground on thin ropes or local vines the natives used in lieu of rope while laboring in torrential downpours. Gowen's rooftop assembly problems only began when the antenna was finally unloaded from the munitions barge. Every part, some weighing several hundred pounds, had to be hand lifted up the side of the building to a non-forgiving roof that possibly would have been walkable when dry but was simply a skating rink when wet, as it was for the entire exercise. Behar's several-ton-deadweight twenty five footer, when assembled but lying on its back in a mud bath on the ground, somehow had to be lifted 25 feet into the air 'straight up' to be precariously 'nailed down' on its refabricated ex-52-DeSoto mounting plates.

These were the best of the 'clever American satellite professionals' - never before and never again would so much experience and so many diverse skills be in one spot at one time. Best or not, every person there would be taxed to the limits of his abilities and human endurance right up to the moment when Doctor Arthur C. Clarke, dressed in full Chancellor robes, walked on freshly laid 4 by 8 sheets of plywood through the sea of mud to lead a procession of the country's leading educators and politicians directly beneath the 25 foot Hero antenna where Bob Behar, suspended by a rope hoist, was still inserting and tightening 1/2 inch and larger bolts to anchor the monster antenna to the steel pillar mount. Thirty minutes later as Clarke stood at the podium inside the building addresssing an overflow crowd of several hundred about his gratitude for the 'American expeditionary effort', there was a muffled shout of glee from out-of-doors. Bob Behar, covered in mud and soaked to the skin, with one of Andy Hatfield's Avcom receivers protected beneath a plastic raincoat, had 'found the first pictures' with his dish. Arthur paused, looked at me and I interpreted Behar's shout with a thumbs up to the father of satellite TV. He smiled and continued his remarks, now absolved from any possibility that failure would be the frosting on this particular cake. Inspecting the Hero 25 footer's TV reception following the dedication ceremony, the Russian Ambassador to Sri Lanka admired the reception from Moscow and then said to me matter of factly, "I get the same channel in Moscow

and it only costs me 100 rubles a year there." With that he sauntered off, obviously not very impressed with what we had done.

Intermingled through the ten days of mud, mud and more mud were various official government arranged events for many of the expedition force. Behar and I both gave lectures in classrooms to graduate engineering students. Doug Dehnert managed to 'hold technician school' for a handful of third and fourth year electronic students; they would be responsible for maintaining all three dish systems on our departure. Arthur was especially pleased to have Doctor Konishi, Director of Engineering for Japan's Uniden, as a part of the expedition. Uniden would make huge waves in the North American home dish industry during 1984 and Konishi-san was known to Arthur as the Japanese scientist who had taken all of the complicated hand wiring of parts out of a Ku band satellite receiver, reducing it to a series of metallic 'channels' cut into chunks of brass and aluminum by high speed milling machines. Konishi's expertise had changed the entire art of building future satellite receivers - what was costing $500 to build in 1983, thanks to his innovation, would plummet to $5 by 1985. As if HBO didn't have enough pressure on to scramble - fast! I would invite Dr Konishi and his wife to visit me on Provo, an experience neither he nor I would soon forget.

"Coop's Troop" also included a satellite pioneer from Nepal; ex-American Tim Brewer who had fled San Francisco just as the hippies took over in the 60s and now was doing everything he could to 'Americanize' the mountain kingdom. Brewer would in the 1990s figure prominently in the launch of several new satellite services through an uplink he helped establish at Subic Bay, the Philippines. And Father Lee Lubic, a Franciscan Monk from Nebraska who had a very weird 'dream' for a man of the cloth. He wanted to establish a North American based satellite relay service to pick up foreign programming from throughout the world, and then make it available to high schools, colleges and universities all over the Americas.

I could not escape Provo even in Sri Lanka. One day, while lunching under the spreading tropical trees on an outdoor table in Arthur's side yard, a man walked up behind me, placed his hand on my shoulder, and said something like, "Look who they let off Provo!" I turned to find Keith Jessup, a British guy whom I had last seen over lunch on Providenciales, staring at me. Keith was the guy who made it big time in the underwater diving world by working out where a British WW2 vessel, the HMS Edinburgh, had been sunk in 840 feet of cold Barents Sea water with something approaching 100 million dollars in gold

bars on board. The gold was being transported to Russia for safe keeping on the northern route from war-ravaged Britain past the bulge that is Norway and Sweden when a German U-boat got lucky. Arthur C. Clarke is of course not only the guru of satellites and science fiction, but also one of the most famous explorers of the undersea world as well. He and Keith were, it turned out, working together on another 'treasure ship' hunt. In the Turks & Caicos, Keith's divers had located numerous Spanish galleons with the permission of the TCI government. And on Provo I was in the process of doing many hours of live and prerecorded television with he and his chappies by way of making a chronicle of their efforts in our placid, coral encrusted waters.

Our trip into Sri Lanka had been by way of Bombay, overnight, and then (contrary to our advance plan) to Madras in southern India for a second overnight. We could have flown directly into Sri Lanka; it was my lack of research that led us astray through India. We had not yet cleared Indian customs when I knew this was a very bad judgment call on my part. Actually, Arthur had gently warned me by saying things like, "I never intend to return there again," and, "When I am forced to travel, I will go to almost any extreme to avoid passing through." Even our Fort Lauderdale travel agent had tried to talk me out of an itinerary that included India.

"What do you have there?" asked the customs guy as he stuck his nose into Kevin's professional grade video camera and recording gear bag. Now it happened that between Dehnert, Johnson, Gowen and myself, we were carrying several satellite receivers, LNAs, and perhaps 100 pounds of 'parts' in our luggage. Close to thirty people, loaded down with exotic electronics, obviously (mostly) American and loud with wisecracking one liners, were some sort of "red flag" to the Indian authorities. As it became clear that we were being detained for special treatment, our mood changed from wisecracking to critical.

One of the group, Henri Guerin, a satellite dealer from New Mexico, had mightily entertained us from San Francisco with his totally off-the-wall sense of irreverent humor. He was Lenny Bruce with a French accent. Unfortunately for Henri, the Indian immigration folks did not know who Lenny Bruce was and when zipped and zapped with plainly discourteous one-liners reacted by shoving a 2 x 4 board they had handy up against his chin and lifting Henry off the floor, pinning him to a filthy wall. Just for good measure, one of the Indians then shoved his knee into Henri's groin (perhaps he was aiming for his stomach and missed). Henri reacted by tossing out more irreverent and plainly threatening one-liners that would have brought the house down in a

nightclub with Lenny Bruce on the stage. In Henri's case it got him 'personal' treatment in a steel barred cage reserved for people the Indians did not want on their soil. The fun was just beginning and Henri would have his passport confiscated, effectively making him a 'man without a country' in a wire cage at the full and total disposal of the Indian authorities. They showed no mercy; by retaining his passport and granting him 12 hours to get his rear end out of India, they essentially guaranteed his abstinence from further Lenny Bruce improvisations in public.

It had been a long plane flight via Thailand from Hong Kong, and the Bombay airport had an intense smell (Dehnert advised, "They burn incense here," by way of explanation - in fact it was not the incense but the 'smell' of what the incense was burning to cover-up that was gagging). One by one, our group turned white, began to cough, and ultimately a few threw up. Right there in the detainee reception area. You might think that would have created an incentive for those detaining us to hurry us through. You would be wrong.

Every bag we carried - perhaps 100 in all including hand carry - was now opened and brown skinned often clumsy fingers ripped apart the contents spreading a layer of clothing, papers and electronics over a wide area of extremely filthy floor. Any attempt to ask them to be more careful or concerned for our belongings only seemed to increase the fervor of the uniformed customs-cops. David Lyman, a satellite dealer from Utah and a staunch Mormon, tried being belligerent. Again, the wrong approach. He was taken aside into a room where forced to sit down he could but swallow hard as the custom-cops removed the soles from his shoes and slit open his American brand toothpaste tubes.

Son Kevin simply refused to allow them to 'dump' his much loved pro-TV camera out on the dirty concrete. The more he protested, the larger the crowd of custom-cops who came running to see what the commotion was about. As his dad, I flashed every kind of wallet ID card (ABC TV News, CNN Staff Reporter et al) I had in my Lands End briefcase. I was speaking Dutch to ears that understood only Hindi. With Lyman and Guerin now getting 'special treatment', our entire group was tagged with the same respect as a Hell's Angel Motorcycle Club might receive when invading Turlock, California on a Sunday morning.

In the end Dehnert's calm self control took charge of the melee as he insisted to see 'the boss man'. A fellow finally appeared followed by a new crop of underlings. What they decided, against everything we believed correct and satisfactory, was that anything and everything we had with us that did not look like merchandise a 'normal tourist' might

be carrying 'for personal use' would go into 'quarantine'. That meant, someplace in the bowels of the airport, they had a 'lock up' where merchandise 'passing through' India was stored until the passenger was ready to leave for his or her next destination. Handing over tens of thousands of dollars in one-of-a-kind for Arthur C. Clarke satellite hardware, portable 3/4" video recorders and ham radio gear seemed like an open invitation to kiss it all good-bye. Damned if that didn't turn out to be right!

Dehnert and Johnson insisted they accompany the confiscated materials to the lockup, 'to verify safe keeping'. In Hong Kong, both had acquired bargain-priced aluminum 'trunks' - the kind that defy the worst treatment of airlines because of their design and metallic shells. Inside, the 'group' had stored everything of extra value and requiring special handling in a sort of 'communal' way; some belonged to Dehnert or Johnson, some to Guerin, and so on. Dehnert had been here before (not Bombay, but where hardware he was carrying was taken for 'safe keeping') and he correctly surmised that if he did not actually see it placed into a locked cage and be given a written detailed receipt for everything going into lockup, some or all of it would never been seen again.

Nothing about our Bombay arrival boded well for even the 20 hour stop over. The fun was just beginning. Our Fort Lauderdale booked flights had us leaving Bombay the next afternoon for Colombo; a direct flight. It was my responsibility upon reaching the 'Holiday Inn Hotel' to find a working telephone, call the next day's airline and obtain verification of our seating and the correct flight time.

"I am sorry - that flight has been canceled," I heard the voice on the phone reciting. It had taken 45 minutes to get through to the airline. "No, I cannot help you with a replacement flight - you must call the reservation desk tomorrow morning after 10AM." It was a solemn brood standing around me using the hotel's only (occasionally) functional telephone. Jamie Gowen and his buddy Ed reached for the zipper on their fly and disappeared into the night.

6AM on the beach. Snake charmers with woven baskets, dancing women, a sea of dirty faced raggedy clothed children begging for a handout, reasonably well dressed individuals - male - doing Yoga. This was not Provo. Out on the street, an oxen drawn cart was slowly meandering down the alleyway as the lone driver snapped a small wooden stick with a rope on the end to guide the beast and alternately, rang a brass bell by his arm. This was the 'body pickup detail'. Those who had died during the night were awaiting transport, piled several deep

helter skelter in his small cart, for a destination they would never see in this life. No, I was not home on Provo.

There was no replacement flight to Colombo. We were in Bombay, "perhaps for a week - maybe longer," advised the accented voice on the noisy telephone connection. "But if you come here, perhaps we can work out something." The fact that we needed 25 seats was a distinct challenge.

Dehnert and I went to the airport, stood in line, carrying with us 25 sets of pre booked tickets and 24 passports while the balance of the group hung out at 'The Holiday' watching cobras sit up straight in woven baskets on cue or dodging local urchins who began each utterance with "gimme..." followed by something they considered of value. "Your shirt?" OK! "A US dollar?" WOW! "A piece of bread left over from breakfast?" Why not!

Dehnert, to his credit, never once reminded me, "Why did you book us through India?" No answer I might create would have been satisfactory. Our equipment was gone, our seats were gone, and meanwhile down in Colombo ACC was bordering on hysteria. He, too, had learned our flight was not only canceled but not even scheduled for a future date.

"Twenty-five seats to Colombo?" asked the British accented trained ticket counter lady. "Let me see," and she turned away from a malfunctioning computer screen that barely glowed, because the CRT had long ago expired, to a two-ring notebook.

"Pity you are not in Madras," she began. "We could do it from there, tomorrow morning." Dehnert was first to see the possibility. "Can you get us there - to Madras?" Now India is approximately the same size as the USA from the Rockies east. If Bombay was Denver, Madras would be Miami.

"There are no seats available to Madras - certainly not 25," she began. "Unless of course you wish to travel on an underbooked charter flight." Questioning revealed the "underbooked charter flight" was going to Madras late this very afternoon. On board, a group of Russian tourists. We quickly agreed to do it if she could also confirm before we left seating on the next morning's Madras - Colombo flight. Two aggravating hours later Doug and I stumbled back into the taxi area bordering Bombay 'International' with ticketing for 24 to Madras and 24 to Colombo. Or so we thought. Henri? Odd man out; no passport to display, no ticket.

Dehnert. "Can you arrange Polly? I know we have four hours but maybe I should start chasing our captured luggage right now." I would

not set eyes on Mr Dehnert again for nearly 24 hours; no, he did not make the Madras flight nor did our 'security sealed' equipment.

Somehow, in a trail of miniature taxi cabs stretching out over a mile or more, all 24 folks and their dozens of bags managed to arrive at the airport in advance of the Russian charter flight departure; Henri was left behind fretting about his passport and the fact that his '12 hour emergency stay' had now run 4 hours past the 'get out or die' deadline. The good news was, he had been released from the steel animal cage to accompany us. What I would not know for nearly 24 hours was how the 'charter flight status' of our rearranged ticketing had become an insurmountable challenge for Dehnert as he did his best to argue our belongings out of the holding area. The rules plainly said that when material was placed into storage for an onward bound flight, it had to be hand carried by airport security personnel to the scheduled airplane loading zone and would only be released if the flight had a destination outside of India. Dehnert could not simply sign for it and be away.

Our 'charter' flight was not scheduled. Moreover, as it did not appear on any printed schedule of flights leaving Bombay, the poorly paid chap in charge of the secure area would not even discuss it with Doug. He tried all of the obvious American ploys - a twenty dollar bill, a fifty dollar bill, his fake Rolex watch. Nothing worked although I was later told he came close when he offered a fifth of Johnny Walker Black Label.

"If he had not been standing behind a wire screen gate I would have reached out and choked him to death and gladly taken the consequences," Dehnert later related. Mild mannered Doug - past the breaking point.

The flight from Bombay to Madras - for 22 of us - was punctuated by the discovery that the Russians were of the Muslim faith, and they insisted in the two-plus hours on having a meal. Not your typical airline provided meal. Out of hand carried woven reed bags came dozens of tiny iron pots into which they pounded broken chunks of burnable material and then setting the pots in the aisle way, lit on fire to heat their food. Until you have traveled in an enclosed metal container choking from the smoke of burning cow dung, you have not lived totally. All thoughts that Jamie Gowen may have harbored about, 'scoring a Russian lady on an airplane flight at 25,000 feet', quickly disappeared.

Madras is the Miami Beach of India - at least it was in 1983. Moving 22 people in unison to a hastily arranged hotel in taxis which would

have been at home in the Ringling Brothers Barnum and Bailey Circus (you know the vehicle - 10 large people, who fold up like accordions, amaze the crowd by disembarking from the tiny Morris Minor car) was now becoming second nature. Checking into a hotel with a crowd of North Americans who only wanted to find a cool drink and wet shower (there was something penetrating about burned cow dung smoke) was also now becoming second nature.

Porry/Polly Dehnert was 'alone'. Doug of course missed the flight, and nobody knew where he was or why he missed the flight. We only knew he had gone to try to retrieve the valuable and much needed in Sri Lanka satellite receivers, LNAs and ham radio parts. So she stuck to Susan and I like glue. More like a sniveling, panic stricken fly in fact. Because Doug was 'missing?' Not exactly.

While we milled about the check-in of the Madras 'Holiday' several Miami-Beach type Indian cads (there is no other suitable adjective) worked their way through our crowd and up next to Polly. "Wanna Fuk?" asked one. She did not. "I pay you," he continued. Fat chance of that, thought Porry, who was as much a capitalist as anyone in the group. He slid his hand up her butt from behind.

That did it. Porry jumped several feet into the air straight up (she was in fact very athletic and in great physical condition - perhaps this attracted the local Romeo) and landed several feet away grasping wife Susan's arm. The fun and games were just beginning. For some reason, Porry, attractive but not Hollywood material, 40-ish and trim, had become the object of this chap's affection. Moreover, he had two - maybe three - friends who seemed to be there in support of his infatuation.

"I'm not checking into my room," Porry bubbled. "Can I stay with you?" Of course she could. Alas, I was preoccupied at the desk getting the various portions of our group registered and was totally unaware of the Indian version of Jamie Gowen hanging around our fringe. Until we got to our room and Porry told me why, "I am staying here with you until Doug shows up."

If - Doug showed up. We had no reason to believe he would ever again be seen. Nor our equipment. Of course I did not make this suggestion to Polly.

Most of the group, including children, headed for the hotel bar - which because virtually nobody else was staying at the facility, was 'ours' for the night. I still did not know about the Indian Romeo until Porry and Susan drew the drapes on our room and kept 'sneaking a peek' to the outside. "He's there - watching this window," Polly finally

exclaimed.

Not for long. In a few minutes a knock at the door and when I went to open it there he stood - all toothy smile. "I fuk blonde lady," he began. Direct and to the point. With two burly guys at his shoulders. Having only minutes before heard the complete story, my instinct was to grab the guy by the neck and kick the crap out of him. But I remembered the custom-cops and the police with burp guns at the Bombay airport and rethought that response.

"No, she is mine!" said I, bravely.

"OK - me next!" was his quick response, buoyed by his two henchmen.

I slammed the door in their face, and found Susan and Porry hiding in the bathroom.

"We may have a problem, here," I began, heading for the telephone. They were already banging fists on the door. Good grief. Where was Jamie Gowen when you needed him?

Have you ever attempted to explain in English, to a person who speaks only one of 200 Indian dialects, that three big, ugly native guys are threatening to break down your door to get at 'your wife?' Think about it.

While I struggled with this 'conversation' to the desk, Porry summed up all of her courage and walked to the door where she screamed to the other side, "We are calling the police!" Good girl. Followed by a few seconds of silence, then a kick at the door which rattled the hinges and knocked a cheap local watercolor with frame from the wall. "I come back," responded the now familiar voice, and then silence.

Madras hotels had not yet 'invented' door peek holes so we had no verification they had really left. And I was getting zero response from the lady who essentially spoke only Tamil on the desk phone. Inspiration.

"Room service?" said I. This she understood, perhaps one of a dozen phrases she had been taught in English. A funny sound in the telephone and a new greeting in Tamil. I asked if we could have "three large steak dinners with all of the trimmings" delivered to our room number. It took five minutes but finally the kitchen and I decided we understood one another, although I would not be surprised to find one Sea Bass, and two pizzas on our tray when - if - it arrived. But that would at least give us an opportunity to open the door to a known segment of Indian society. And check the hallway in the process.

It was a very long evening. I dared not leave the two women alone and who knew how much trouble the remaining 20 travellers were

creating in the bar. I need not have worried - Jamie and Ed Randall had gone 'prowling' and that left 18 to gradually work their way to their overnight accommodations. Every ten minutes or so Porry managed a peak through the drawn curtains and eventually she saw all three of her 'admirers' standing outside under the palm trees staring at our window. At least we now knew the hallway was clear.

Polly was not the only one 'abandoned'. David Johnson, staying behind with Dehnert to try to wrestle our aluminum cases from Bombay customs, had suddenly realized that when he came into the country, customs had made a notation in his passport about a Radio Shack computer which he was allowed to retain provided he showed the computer to exiting customs when leaving. The penalty for leaving without it would be something approximating 3 times the US dollar value of the PC. He went into a panic mode, bailed out on Dehnert and somehow managed to obtain a flight to Madras so he could rejoin his computer for the exit strategy to Colombo. His wife Laurie of course had it with her since bouncing around the Bombay airport was no place for a Radio Shack computer.

It was 1AM when a loud knock on our door revealed, after the exchange of 'passwords', one David Johnson. Laurie had joined Polly, Susan and I hiding in my room for a number of sound, personal safety reasons. How David found us at the Madras Hilton, how he got to Madras, and his anxiety was more than enough story to keep all five of us up until the sun dawned and it was time to repack for the Colombo leg.

Johnson's story. After two hours of fruitless arguing with the keeper of the security area, he and Doug grabbed a cab and headed for the American Consulate. Most of the staff was on vacation but he was persistent as only a Minnesota woodsman can be and eventually he found a sympathetic ear and in turn was assigned an attaché to accompany him back to the airport. What followed was an international incident of the first order. The attaché, flashing US Consulate identification, apparently changed the rules of engagement; instantly. Now it boiled down to, 'pay us the import value of the goods and they will be released'. A scribe appeared in the traditional Indian brown uniform and after laborious calculations was asking for US$12,000. For goods passing through India, not stopping there! Yes, they would take an American Express card.

"I lost control," mourned Dehnert. "Shame on me. I grabbed the scribe guy by his thin necktie and wrapped it around my hand. His face turned from brown to red, just as the consulate fellow grabbed me

by the shoulders.

"Several fellows with burp guns stepped out of the shadows which they were pointing at both of us."

The consulate chap had not lost his cool; he even retained a sense of humor. "OK Paul Bunyan, let the guy go!" was his instruction.

"At this point we graduated to a new level of bureaucrat who took nearly an hour to show up. His uniform was newer, more neatly pressed, his face cleanly shaven and his shoes spit polished. I thought to myself, 'OK, now we are getting someplace'."

Dehnert now knew he had probably missed the Madras flight and through the chicken wire security mesh he could see some if not all of the equipment.

"The new guy was polished and spoke good English, if with a British accent that sounds British only if you shut your eyes and stop staring at a brown skinned Indian. He was direct and to the point - 'you have violated our laws and you must pay.' OK, thought I, it is now down to how much - and $12,000 is not on my table!"

The consulate representative took Doug and David aside and offered his advice. "If you are prepared to stay over a few weeks, we can get your equipment out of here without payment. If you want it out today, or tomorrow, it is going to cost money. That's how it works here."

Dehnert now knew why he paid taxes in America.

The facade about delivering the goods to a foreign-bound airline flight now disappeared. It cost Doug US$2,500 in travellers checks but he now had a luggage cart filled with all of the missing items and was loose on the floor of the Bombay airport trying to locate somebody - anybody - who would fly him and his badly wrapped baggage to Madras or even Sri Lanka.

Alas, it was too late that night. He sat in the Bombay International terminal through the night not aware wife Porry was playing her own game of self preservation in Madras. Dehnert would eventually show up in Colombo several hours after our group arrived from Madras, $2,500 poorer but carrying all of the expedition-necessary equipment.

It was not a surprise that almost nobody in the group wanted to return to the USA through Bombay. Unfortunately, that is the way we were ticketed. So intense was the 'fear' of recycling Bombay that several paid a large fee of several thousand dollars each to book onto a Colombo Airport plane that went directly to London. But 15 of us stuck to our now frayed tickets and hoped that a scheduled 12 hour layover at Bombay International would not turn out to be tediously

familiar. You guessed it - the second visit to Bombay was every bit 'as much fun' as the first.

The first leg to Bombay was uneventful - as uneventful as any trip on Air India could be. In 1983, this was the only 'national' airline in the world that refused to participate in a planet-wide data base that allowed travel agents and ticket counters throughout the world to check on even the status of a flight. You've heard of an unlisted telephone number? This was an unlisted airline!

The Bombay - London connection required us to clear customs - again - then go through customs and immigration control 50 feet away from where we entered to gain access to our London flight 'lounge' (a junior high school in Oshkosh had better quality seats in their gymnasium). Our discomfort was ahead. First, after walking fifty feet from 'in' to 'out' the brown skinned, dressed in brown uniform chap checking us 'back in' to leave was on the take. Big time. Several ahead of me simply handed him a US twenty dollar bill stuck inside their passports after watching those at the head of the line get raked over the coals. Dehnert, fresh and still vividly recalling his round robin exercise to exorcise two aluminum trunks from their 'safe keeping', was past his limit on being nice to Indians. The brown dressed guy started to hassle Doug. When twenty dollars was dismissed as not on the table, the immigration guy went to plan 'B'.

"Go back to duty free and bring me a bottle of Johnny Walker Black Label," was the clear instruction even I heard ten feet behind Dehnert. The Minnesoto man's right arm shot out, his fingers grabbing the smaller man's tie and his arm twisting the tie to cut off the Indian's larynx.

Very quietly, without raising his voice, Dehnert reached with his left hand to lay the passports for he and Porry out in front of the immigration chappie. By now the Indian's brown face was red and he was gasping for breath.

"Stamp these you son of a bitch and I'll let you breathe again."

Two quick stamps, Dehnert scooped the passports up and released the twisted tie. Smiling, he turned to the next in line and said very simply, "Next."

This might be an appropriate spot to note that all of what you have read about India and perhaps another 5,000 words amply illustrated with photos appeared in CSD for January (1984). Yes, we had subscribers in India and yes one of them (perhaps more than one) made certain my full report was read and digested in several prominent Indian newspaper offices. Which drew 'editorial responses' in the

respective newspapers. One Bombay/Mumbai daily took exception to my report, found 'nothing of truth' in it, and then lambasted, "American tourists who are unable to assimilate our culture and who would do better to stay at home." A second editorial response had a different take. "This should be a wake up call to our government officials charged with the responsibility to greeting and clearing visitors to our country. People who are treated in this manner will never return again and will tell many of their sad experience. Unfortunately, because of the wide circulation of Coop's Satellite Digest in the American media world, now tens of thousands of very influential broadcasters have a view of how we treat visitors, which is unlikely to bring them here."

We were not out of India - yet. There was the 'small' matter of an airplane that somebody in the ground crew had bungled while doing a routine check for the 747's 'safety' before departure. We were two elevated stories - twenty feet, perhaps, above our plane, looking through double pane windows that probably had not been cleaned from the day they were installed. Our view was distorted but we could plainly witness first one guy standing on the wing with a drill, then two guys, ultimately perhaps 50 all attacking the airplane's wing with electrically operated screwdrivers. One by one they pulled the wing panels off the superstructure and peered down inside. They were looking for something, and after an hour - two hours - three hours - it became obvious that whatever it was they sought, they had not found it. By this point a quarter of the airplane's wing was sans-top plates; a network of aluminum and titanium girders filled with wiring, fuel lines and data sensors. Our view was 50-yard-line row twenty, looking straight down into the melee.

There was something very alarming about a 50 man crew of Indian 'mechanics' wielding high torque screwdrivers disassembling the wing of the very airplane which would - ultimately, be expected to haul us (and several hundred others) to London. In a country where even simplistic ticketing screens failed to function, the possible damage this untrained army of 'mechanics' might do to the plane we expected to haul us 5,000 miles safely was very frightening. The disarray of what we watched them doing or trying to do created a tension from which there was no relief.

"If it didn't involve going back through immigration and customs again, I'd go out and get 'that' bottle of Johnny Walker and we'd all sit here stupefied!" suggested Dehnert. Son Kevin shot videotape of the exercise until he ran out of battery, and I shot a roll of 35mm photos each time it looked like we had reached the pinnacle of disaster, and

yes, appropriate images appeared in CSD with my elaborate report to the industry world-wide. Nobody in the group, each vowed, would ever return to India again.

Eleven hours after the scheduled departure (23 hours after landing from Colombo) we were sitting, nervously, in our airplane seats. Air India had pronounced the plane 'fit' over the PA system with intonations that smacked of dead tired and misguided British taught English. Not one of the 15 or so remaining in the group believed for a moment we would ever reach London, except perhaps in body bags. We were wrong.

It was an uneventful flight and on landing Doug Dehnert and David Johnson headed straight for the nearest British emergency infirmary. Johnson had the worst diagnosis; "Campylabacter," which the calm British Surgeon labelled, "the first case we have seen here in decades." Quarantine was required and Johnson would be left behind as the balance of the no longer humor driven group struggled back to the USA. It had been, as promised, "the adventure of a lifetime."

Eleven years hence wife Gay and I would fly from Singapore to Colombo for a week-long visit with soon-to-be 'Sir' Arthur. deja vu, even in the best of Yogi Berra pronouncements, was hardly adequate. The day before our arrival, a terrorist had blown himself and the leading contender for Prime Minister to small bits during a public political rally. Our late night arrival was to an International Airport shrouded in darkness, and crawling with local fellows in uniform carrying weapons often larger than their smaller-than-American average sized bodies. The visit with Arthur was delightful, once we got past the ten meter (or metre as they spell it) spacing between brown uniformed weapon carrying chappies on every public street of Colombo. As only Yogi could have expressed it, "it was deja vu all over again."

The TVRO Explosion

We returned, dishevelled, to an industry in total disarray. The 'humor' laced January 1984 CSD to the side, nothing about the status of the industry was funny. Disaster was at every doorstep.

On the surface, business was booming. December had been by a wide margin the largest 'shipping month' to date; everyone was either rolling in cash or if they were not, focusing on what it was about their product that set them outside the circle of success. Small dishes had invaded the towns and cities, and the entire nature of the business was changing weekly. From a rural customer base, it was becoming suburban and attracting renewed opposition from the cable, programming and copyright folks. Home dishes were tolerable if not greeted with joy when they stuck to the farm lands. But as they were now selling in larger and larger numbers to town and to city folks who were in turn disconnecting from cable TV, the 'threat' of home dishes had escalated from an 'orange alert' to a 'condition red' in the cable and programmer world. Moreover, if the threat of 'outside (read HBO) intervention' was not enough to stir up the industry, internal matters involving SPACE and Schneringer had reached a boil. The industry was heading for internal melt down, even without HBO.

Back in the September (1983) CSD, I had profiled a plan percolating at HBO; to turn the 'piracy' into cash by creating a 'CBD' (C-band direct) pay satellite service. This was a turning point for HBO; they had finally accepted that there was money to be earned if they somehow created a home-dish-only service. I knew all of the details, or thought I did, from moles located inside of HBO and from my frequent 6 hour visits to Time Inc. in New York. And I 'spilled the beans' in a gentle way,

protecting my sources in the process.

HBO desperately needed the support of other satellite programmers to reduce the cost to them for the descrambler equipment that was scheduled to go to the cable affiliates. Their primary competition in the movie biz, Showtime, was playing hardball - not interested. So HBO created a scenario which turned scrambling from a costly venture to a profit center. It went like this.

Using spare, previously unused capacity, on a Hughes Galaxy satellite, HBO proposed to create as many as 9 channels of service - of which HBO would be one. This 'CBD' package, they postulated, would be for the singular purpose of reaching home dish customers. Fees as high as $39.95 per month were being suggested. The descrambler would come from M-A Com, in the region of $400 a pop. HBO was suggesting to Showtime (and others including Ted Turner and his WTBS plus CNN) they join the 'CBD platform' and share the revenue stream. If all of the services agreed to scramble their regular cable feeds, and home dish systems would only regain access to premium programming through the Galaxy CBD package, HBO would be a happy camper.

For home dish consumers, there would be a 'conversion' process lasting perhaps a year or longer. First, home dish viewers would watch their unscrambled services (including HBO et al) 'go dark', over a period of six to nine months, one channel at a time. During this period, home dish users would be offered the opportunity to purchase a stand-alone decoder manufactured by M-A Com and then to subscribe to the 'CBD Service Package'. The unscrambled channels, primarily those not affiliated with or serving the cable industry, would remain free-to-air (FTA). But if movies, sports, CNN News or WTBS Super Station was a reason for you to own a dish, short of subscribing to CBD, you'd be without those services.

HBO cleverly used CSD and myself to float the proposal and from feedback gauge the extent of opposition. Appearing in CSD, it was not yet 'official' so they could (and would) deny any of the detail which seemed to be attracting fierce opposition. It was, in September 1983, a plan; perhaps semi mature but still subject to modification. The negative feedback would play an important part in making changes which would, when finally and formally released, be less likely to attract lightning strikes. This was the American art of 'running it up the flagpole to see who salutes', a technique refined by politicians such as President Franklin Delano Roosevelt, four decades prior. From September 1983 through virtually all of 1984, the CBD plan went up and down the flagpole like a Lemming chasing a cliff, but each time

it returned to the top it was closer and closer to final refined implementation.

CBD was a serious challenge to Rick Brown's SPACE income. If CBD came to market and worked, Brown's oft-repeated argument that, "all home dish owners want is the opportunity to subscribe to cable programming," would seem to be quashed. If SPACE 'existed' largely to gain 'viewing rights' from reluctant programmers closely wed to the cable industry, CBD would seem to be the end of the train ride for Brown. He, now largely enjoying his $35,000 to $50,000 'budget' each month, had to find a way to make CBD not what HBO thought it would be; equal opportunity for all home dish viewers to access 'all' (not limited) cable programming. And this 'hidden agenda' would shape the industry events of 1984.

Cable handed Brown a free plane ticket when in January 1983 a pair of middle-Kansas cable firms (Air Capital TV, Multimedia) had brought a complicated 22 page civil action against a Wichita home dish sales firm (Starlink Communications). The cable firms claimed Starlink was selling equipment which allowed viewers to violate various laws including something obscure known as Section 605 of the Communications Act (of 1934). The cable firms claimed the home dish firm was not only 'stealing cable programming' at its store front display center (where it quite openly had multiple TVs running with HBO and others on the screens) but it was encouraging customers to also break the law by openly advertising-by-name firms such as HBO which had programming the customers could 'tune-in' after purchasing a Starlink home dish system. Advertising by home dish dealers in central Kansas had become extremely competitive, using phrases such as, "Compare our unit with cable TV; over 100 channels of programming, no down payment, bank rate interest, as low as $31.65 per month."

The no-down-payment, 'easy monthly terms' probably was the last straw for cable. No cable system in 1983 in Kansas had 100 TV channels to offer, and the $30 region monthly payment was extremely competitive with what cable demanded for a quarter or third of that number of channels. One year after the suit was filed, the Bill Young Satellite Financial Planning Corporation program of financed home dish systems had, in less than sixty days, turned the industry's advertising around. Dealers who still demanded significant cash money when an installation was completed were rapidly becoming 'history'. As Young had so correctly observed, "this is a credit based economy."

Back in CSD for January (1983), I warned, "If Air

Capital/Multimedia wins this suit, every dealer in the United States will be out of business the next day. That's no hype. This is the BIG one we have all been expecting for years."

This was a ground breaking lawsuit that cable and programmers had resisted for years. It was the first to charge that the "mere demonstration of satellite signals is a violation of law; the sale of satellite equipment is a violation of the law; an individual homeowner, using a TVRO, violates both Section 605 and copyright law by using the terminal (to watch satellite television)."

CSD further reported:

"Starlink, wisely, is a member of SPACE. It is likely, given the unhappy consequences of this case going 'down' against us, that even if they had not been a SPACE member that their plight would have attracted the SPACE legal folks. SPACE, plainly, is very worried, and well they (and we all) should be. SPACE acted promptly, dispatching a pair of lawyers, including Rick Brown, to Wichita to survey the situation and to engage local, Wichita counsel. Finding counsel, to adequately defend Starlink, was not a big challenge; this case has all of the earmarks of going a long, long ways, possibly to the Supreme Court of the land before it is over. Lawyers like to be a part of the big time stuff; this is big time stuff."

Which, without over emphasis, would of course include Richard L. Brown.

If the legal muddle in the USA was heading for a showdown in the OK Corral, 'north of the border' in Canada the home dish industry had been handed a significant victory. Barrister Mark L. Lewis, practicing in Ottawa and another of those 'earlier life' friends I so cherished, dug into a late 1983 ruling by Justice Muldoon of the Federal Court of Canada in our January 1984 issue. The plain facts.

The Holiday Inn Hotel, Pembina Highway, Winnipeg, engaged the service of SaTel, an Ottawa based firm, to install a satellite dish and associated electronics to receive Showtime, HBO and WTBS. A terrestrial TV rooftop antenna was also installed and the combined package of satellite + terrestrial TV channels was then fed to the Holiday rooms. There was no surcharge for the expanded TV channel service, nor did Holiday raise their room rates when the services were added.

In 1980, the Canadian Department of Communications ordered the Holiday to cease and desist - stop providing satellite TV channels to rooms. The Holiday Inn disconnected the equipment, sought local legal advice, and then turned it back on, saying in effect, to the DOC, "If you really think we are violating the law - come and get us!"

While the federales pondered this refusal to obey an order, the installation firm SaTel and Holiday Inn did a pre-emptive strike by filing their own court action against the Canadian Radio-Television and Telecommunications Commission (CRTC), the DOC and then for good measure the Canadian Justice Department. In this action, they asked for and received an injunction which prevented the Canadian Government from simply sending in the mounties and confiscating the equipment - pending a court determination of the suit. Some three years later, the court of Justice Muldoon got around to hearing the evidence; a clever move by SaTel and Holiday Inn as it bought them a grace period which allowed not only the continued operation of the Pembina Highway system but a further explosion by the thousands of additional systems all across Canada at motels, camp grounds, hotels and public gathering spots.

Barrister Lewis had an expert's background in this very field, something he gained from a tender youth by being a devotee of 'long distance radio and television reception' - a 'DXer' as they were then (and still are) called. This gave him a head start on total comprehension of the strange and decidedly 'foreign language' of the broadcasting trade, which he used to fine tune his translation of Muldoon's legal opinion into straight forward English for CSD readers.

And it said, "Neither SaTel nor Holiday Inn have broken any existing Canadian law, rule or regulation."

Canadian radio and TV regulations, then and pretty much today as well, attempt to divide the act of a radio or TV service into two totally independent activities. First, there is the 'transmitter' providing the 'transmission' of the information. That attracts one set of rules, originally created to insure that nobody operated a transmitting station in Canada without appropriate licensing. Second, there was the reception of 'broadcast' transmissions - those created for the general listening (or viewing) public. Of the two, 'transmission' was fine-tune regulated while reception was generally left alone.

Reception was defined as a 'broadcasting receiving undertaking' which was a trio of words the Government attorneys would stumble over (and over and over) throughout the proceeding. The CRTC tried to convince Justice Muldoon these words handed, to Government, "the authority to regulate everything related to broadcasting and reception of signals, including satellite signals."

Under Canadian law, if what you were/are doing is determined to be a 'broadcasting receiving undertaking', then the CRTC insisted you file for a license to engage in that activity. Unfortunately for the

Government, the three words had never been defined nor explained nor footnoted in any of the debates leading up to or following the adoption of the Canadian Broadcasting Act. Lewis wrote, "In 1967 when the Canadian legislation was drafted and passed, the people responsible for writing the Act overlooked cable television, SMATV, MATV so these three words were literally thrown in as a gratuitous afterthought." A catchall - intended to mean, perhaps, "and in case we have forgotten or neglected to be specific about anything in the Act's language, these three words are a carpet sweeper granting broad, discretionary powers to the Government to do as it wishes as and when circumstances dictate - without additional legislation."

Judge Muldoon saw through the subterfuge and refused to be drawn sideways when presented with arguments to the contrary. HBO, Showtime and Atlanta's WTBS all engaged Canadian counsel to argue their respective claims to 'copyright' and each satellite broadcaster attempted to convince that the satellite transmissions were not 'broadcasting' in the original context of the Act. Each tried to bring US law, privacy of microwave communications, and their claims to exclusive property rights into the case. Muldoon listened patiently and then simply dismissed their arguments by pointing out that if they really intended for their transmissions to be 'private', they would have taken steps to protect them from casual-tuners-in. It was the 'if you want it private, then scramble' response.

He remanded the US programmers with, "Clearly they do not wish to provide transmissions for direct reception by the general public. Plainly they desire and hope their transmissions will not be directly received by that sector of the general public who decline to subscribe to their affiliates' cable television service. Plainly, also, their business objective is to protect their affiliates' interests in augmenting the number of non- subscribers.

"(However) the transmissions are neither scrambled nor encoded so anyone utilizing standard TVRO earth station equipment can directly receive them The programs have mass appeal, are not limited in content nor directed to any particular segment of the general public but are formulated so as to attract as wide an audience as possible. These wide appeal transmissions are widely dispersed in an extensive 'footprint' which permits direct reception not merely in the United States but also in parts of Mexico and Canada.

"The transmissions of Showtime and HBO must be found to be intended for direct reception by the general public, even though that result is not really desired by them, because that is the wholly fore-

seeable and indeed, known consequence, of their conduct."

Justice Muldoon found a similar decision in the case of Atlanta's WTBS, with one added wrinkle. WTBS as sent via satellite was a normal TV station, 'with a satellite extended coverage footprint'. The operators of WTBS clearly intended for their 'public broadcasts' to reach as large an audience as possible; their sales literature and commercial advertising sale depended upon that happening. The 'extension' of this coverage, "beyond the state of Georgia by satellite, created no special legal precedent which in any way changed their status when distributed to the rooms of a Holiday Inn located in Winnipeg."

Public is as public does.

The case would appeal but while this was slowly grinding through the courts Canadian Copyright Law was involved in a long-term rewrite which ultimately would have the effect of delaying further legal action against those who would sell, install or use TVRO systems in Canada well into the year 2002.

And because the appeal process have the effect of suspending in limbo any and all possible 'legal remedies' as sought by HBO, Showtime and WTBS, this decision had the practical effect of saying to the Canadian home dish industry, "Get back to work boys. Wham, bam, thank-you m'am!"

Nice knowing ya!

Late in 1983 Taylor Howard, after nine failures, convinced the Unite States Patent Office to grant him a 'Letters of Patent' for his tiny motor driven 'Polarotor' feed system which allowed users to switch between vertical and horizontal 'signals' coming from satellite. Within hours, Taylor's Chaparral wallpapered the industry with harshly worded, pointed-at-Boman, advisories. Chaparral claimed Boman was 'guilty of patent infringement, trademark infringement, false designation of (product) origin, unfair competition, unfair business practices'. At this point in time, Chaparral, by any measurement technique, had cornered 75% of the satellite antenna feed market; possibly 30,000 to 50,000 units per month with a wholesale value (to Chaparral) of in excess of $2,000,000 every four business weeks.

In the industry advisory letter, Chaparral 'warned' antenna manufacturers, distributors, dealers who might consider buying their feeds from Boman they could be considered to be 'co-conspirators' in violation of the newly won Taylor Howard patent. Nothing scares the crap out of someone like a threat of a big dollar law suit. The immediate effect was virtually all of the firms buying from Boman stopped doing so, instantly increasing the income of Chaparral. As each feed's sale placed $40 profit into the discretionary hands of Howard and partner Taggart, we were talking sizeable dollars here; more than a 'cool mil' each month.

Boman's Bob Maniachi was caught by surprise - not by the patent grant but rather by the way that Chaparral responded. It took him a few days to work out his answer, which was: Boman would indemnify any buyer of his antenna feeds against any claims that might result from

Chaparral pursuing legal action against them. Not many felt totally comfortable with that indemnity although there were sizeable dollar advantages to continue buying from Boman - their feeds were going to customers at about half of the Chaparral product cost. Boman's Maniachi quite openly disclosed the feeds, "Cost us around $5 each to manufacture." One had to suppose that Chaparral, charging 30-50% more per feed, was also churning them out for 'around $5 each'.

Chaparral was playing hard ball, mostly driven by Howard's personal dislike of Boman's Maniachi. Their 'advisory letter' to the industry, not so veiled threats that doing business with Boman was no long acceptable, was upon CSD's investigation filled with misstatements of its own making. Howard and Taggart, as later law suits would rule against them, were not exactly lily-white. Chaparral stressed that Boman's 'Polar-Matic' product name was 'intended to confuse the marketplace' because of the similarity to Chaparral's 'Polarotor'. Furthermore, Chaparral claimed a trademark (tm) for Polarotor. CSD investigation revealed contrary.

There was no registered by-Chaparral Polarotor trademark. Perhaps it was 'in process' and simply had not been formally acted upon (trademark pending is also acceptable in commerce). I went to the U.S. Government trademark registry and found more than 200 'polar....' trademarked names. The American instant camera firm, Polaroid, owned every single one of them. In talking with an attorney in Polaroid's legal department, CSD learned the firm had created trademark names on every possible (or so they thought) word combination that began (or ended) with 'polar'. And in running my finger down the list, there it was; 'Polarotor', a trademark of Polaroid.

So was Chaparral simply the victim of incomplete legal work by their own attorneys? Taylor Howard would have liked you to believe that. But the facts were against this. On June 21, 1983, Polaroid had filed a demand at the trademark office that Chaparral cease and desist using the name. On July 25, a temporary injunction against Chaparral was made legally permanent. Did Chaparral attorneys in drawing up the 'industry advisory' which sought to 'warn' manufacturers and distributors from dealing in the Boman Polar-Matic (November 1983) know their client had no legal right to the name Polarotor? Of course. Did that stop them from charging Boman with 'trademark infringement'? Not at all.

What about Boman's use of Polar-Matic? It, also, Trade Mark Registration 1,095,805, was the property of Polaroid. Maniachi claimed he knew this going in and he had approached Polaroid directly seeking

an agreement to allow Boman to use their registered trademark name. Neither Boman nor Chaparral had any legal right to be using 'Polar...' anything as product names when Taylor Howard's much reworked patent application was finally granted after nine consecutive submissions and followed by patent office denials.

It all began when a design engineer named Gene Augustin pulled a working prototype 'rotating feed system' from his worn briefcase during the Omaha SPTS in mid 1981, first discussing it with me, then taking it to Taylor Howard for a 'show 'n tell'. Howard immediately absorbed the device as 'his own' but as neither Augustin or Howard knew at the time, there was in fact 'prior art' in place by a man named Murphy; circa 1953. The 'Murphy rotating feed' was so strikingly similar to what Augustin prototyped that upon submission for its own patent, it would be denied. Howard learned this the hard way - by submitting for patent approval what he 'saw' in Augustin's outstretched palm and having a patent examiner dig up the Murphy 30 year old patent as 'prior art'. Tay Howard had to make subtle modifications to the product's design not once but nine times before he was finally able to convince the patent examiner what he had was 'new, novel and totally different' from Murphy. In the end, Howard was granted a patent on the improperly named Polarotor not so much because of what it looked like and did, but more because in his technical description of what it did. Howard was able to infuse totally new technical terminology into his explanation. The patent examiner, CSD found by studying the patent note file, was quite confused; he saw the device in front of him, studied the engineering drawings attached to the application, and both the device and the drawings 'looked like Murphy'. But the words - here Taylor Howard was creative and by using a different set of terminology to describe the relationship between the rotating probe and the inner walls of the feed, he was able to claim 'something new'. Perhaps the examiner had simply tired of staring at Taylor Howard's face; in any event, he gave it his approval on November 8, 1983 and from that moment onward the lawyers began to make money.

Of which there would be plenty. From late 1981 through the mid 1990s, Chaparral apparently shipped in excess of 5,000,000 'antenna feeds' with an average invoice value of $50. And a median gross profit of $40 per feed. Which comes to? $200,000,000, which made Howard's Stanford professorial salary look like a pittance. In anyone's book, a tidy amount for Taggart and Howard to spend in a 'discretionary' manner. The wonder in all of this is not that a pound of raw aluminum casting shaped in a peculiar way could create such wealth but that in building

that pile of loot, Chaparral was so careless in their selection of lawyers to defend their legal position. You don't always have to be 'right' or 'correct' to win in a courtroom; often, just having the most bucks is enough.

Not all new product innovations ended up in a courtroom. Two previously irksome steps in installing a satellite dish got positive shots in the arm during 1984. As the dish installations became more complex, individual wires or sets of wires had to connect the satellite receiver to the outdoor antenna system. The Polarotor required 3 separate wires, the LNB required one or two (or more - some required 5), the motor actuator required 2 to 5 - pretty soon the trench dug from house to dish was becoming quite complex to complete. Innovation. A firm in Las Vegas conceptualized wrapping all of the many individual wire sets into a single waterproof jacket. They called it a 'Siamese Cable' and what it did was cut an hour or more from a dish installation. The firm, Orion Cable Systems, Inc. advertised their innovation in CSD with a (tm) following Sat-Cable and, directly below the description name, 'patent pending'. Neither the trademark nor the patent would fly of course and in a matter of weeks, not months, virtually every cable supplier had a similar offering.

Quick-Rok (no tm posted) was a 'fast setting anchoring cement' which the New York creator claimed "sets rock-hard in 15 minutes to twice the strength of concrete". The product arrived in a ten gallon tub (like a giant can of house paint), the installer mixed in water and, unlike Portland cement, Quik-Rok actually grew (expanded) when dry (concrete has the trait of shrinking when drying, leaving an air gap around the hole you intended to fill). "Wham-bam-thank you m'am" just got 45 minutes faster.

Antennas were adopting as well. Canadian firm Commander Satellite, the brain child of David Brough, had all of the magnetic buzz phrases in their CSD advertising:

"Everything (about our antenna) fits together in a snap. No fuss. No muss. No tweaking. And no call backs. You can get there, get going, get paid and get on with the next job while your competitor is still down at the hardware store buying more nuts and bolts."

Nuts

The seeds of ultimate demise for the C-band TVRO industry were firmly in the ground by late in 1983. To paraphrase Pogo, "We have met the enemy and it are us." Greed and avarice were rampant, and a total lack of medium or long term industry planning was the root that would wither and die.

HBO's CBD (C-band direct) plan was an olive branch, capable of legitimizing the never-should-have-happened C-band home systems. Yes, 'free cable TV' would disappear but even a modicum of common sense would lead one to the correct assertion that, 'stealing pay cable' was a not very sound foundation for an important new business activity. The economics of CBD revolved around a marketplace large enough to warrant custom treatment by the cable programmers ("cable TV without the cable" was an apt description). It was all about 'critical mass' - how many home dish systems had to be in the ground, and selling at a progressive rate, to justify HBO and its cable partners creating a 'special CBD set of transponders?' It was a fool's guessing game, subject to pricing ($19.95 per month would obviously sell better than $39.95 monthly), programming mix (limited as initially proposed to 9 channels, each had to be a much-watched service or people would lose interest in paying for the channel package), and one of those 'technical things' which few gave much initial thought to - making the M-A Com sourced home decoder compatible with existing receivers.

The decoders, proposed at $400 each, would be purchased by the existing (and new) TVRO dish system owners. The thinking was HBO (+ Cinemax) would scramble initially, followed over a period of perhaps 6 to 9 months by virtually all other cable programmers. Over a year,

perhaps less, those who would 'steal' cable's satellite TV services would have ample chances to upgrade their home dish systems or convert to watching the handful of non scrambled channels. It all made good if not perfect sense to me.

But I worried about the mechanics. My contacts inside of M-A Com, HBO's choice for building the descramblers, were gloating, thought I, about some inner sanctum secret. When visiting their Burlington facility in the high tech outskirts of Boston, I detected a level of 'behind my back chortling' - snickers, whenever I tried to direct the inquiry towards the seemingly mundane matter of 'interfacing' their new descrambler with home dish receivers; M-A Com was obviously 'hiding' some important information from me, and therefore, from the industry it claimed to serve. It was not going to be a matter of 'connect a cable from your TVRO receiver to the descrambler and then connect a new cable to the TV set'. That was obvious. I wanted to know why this was going to be a problem, and then what the solutions were. The fear I developed, rightfully as it would turn out, was many or even most existing receivers were incompatible with the new descrambler. Did this mean that in addition to $400 for the CBD descrambler consumers might also face replacement of their existing Intersat, Avcom and other receivers?

M-A Com, as the creator-under-contract of the HBO scrambling system, was in the driver's seat. If, by their design and quite purposefully, they had built-in some incompatibilities to the proposed descrambler which would antiquate several hundred thousand existing home dish receivers, I felt it was important to uncloak their subterfuge. Especially if, and this was one of my early theories, they could change their descrambler design so that all or most-all of the receivers in use would in fact work with their descrambler, without replacement.

Their reason for creating a descrambler which was not going to work with a percentage, perhaps a high percentage, of existing receivers was apparent. Initially, only M-A Com would be manufacturing the descramblers (eventually they would license others as well) and this gave them a leg up on creating a special model of their own home dish receiver products which had the descrambler built in. Then, if several hundred thousand homes were forced, if they wanted CBD, to replace their older style receivers, M-A Com would have a very large marketing head start towards selling truckloads of their own 'integrated receiver-descrambler' models simply because they were the sole source for such a device. My worst, and as it turned out, correct fear, was that the chortling and snickers were because M-A Com had worked

out the 'ultimate double-dealing' plan of their four decade history. You will recall creating police radar and then topping that by creating police radar receivers? This plan made that success look like child's play.

I did not work all of this out for several months but by mid-1984 I had enough evidence to be 99% convinced this was their plan. I took my information to some folks at HBO whom I felt might not be aware of the M-A Com intention. It was not in the best interest of HBO to wake up one morning and learn that M-A Com had just done an end run around their CBD announcement by creating a scenario where M-A Com and only M-A Com was in a position to sell CBD-compatible integrated receivers.

It was M-A Com's 'two-sided selling' technique all over again. Just as with police radars and then police radar detectors, the folks from New England were up to their old tricks. Working this out, locating documents which M-A Com could not deny and HBO could not ignore, became my primary investigative effort for 1984.

But first we had to get there, to mid 1984 and beyond, with a 'whole' industry. The roadway was rapidly becoming littered with rubble and corpses. If someone from outside the industry had sat down with the assignment to create a script which would rip the home dish industry apart from within, it is doubtful even an imaginative, fertile mind could had conceptualized the realty of the first 90 days of the year.

Rick Schneringer versus Rick Brown. RS was old, tired, on drugs and not terribly bright. RB, by comparison, was young, energetic, adrenaline pumped and one of the brightest attorneys in the nation's capitol. Furthermore he was a capitalist with his eye firmly focused on 'the bottom line'; his bottom line. It should have been no contest.

During the first 30 days of 1984, RS managed to accomplish the following. He made and then backed out of an agreement with RB's SPACE to jointly conduct a trade show in Las Vegas during March. He then discovered RB's office had failed to properly renew the corporate status of SPACE and announced to the industry that lacking a corporate status, "perhaps all of those who serve on the former-SPACE Board of Directors can be held individually liable for the trade association's debts." Further, he discovered RB's office had failed to renew the tax-exempt status of the trade association, and in that process the name 'SPACE' which the association used was in fact not theirs; shades of 'Polarotor'! Then he (actually, some attorneys working for RS) found serious reasons to question how nearly a half-million dollars in SPACE income had been spent during 1983 (56% going to RB's law firm). To

frost this cake, RS brought a multimillion dollar lawsuit against the trade association, plus, for good measure, Brown and two officers individually.

And he and his covey of lawyers was merely warming up.

Late in 1983, as CSD reported in teeth gritting detail, the industry was facing two nearly simultaneous, competitive, trade shows in Las Vegas during mid-March (1984). RS had announced early in 1983 his own show and had been aggressively selling booth space at $650 per floor area. SPACE, under Brown's persistent urging, had finally settled on a Vegas show of their own only days removed from Schneringer with booth spaces of $1,050 each. The scheduling of the two shows did not allow sufficient time for a firm, such as R.L. Drake, to attend one, tear down, and move a few blocks down the street to attend the second. And some suppliers, perhaps the majority, could not afford the time nor expenses associated with attending both. So it had become a battle of words - 'STTI is the big one' versus 'SPACE is the industry's own'.

Schneringer came to the SPACE Orlando show (where Ted Turner and Senator Goldwater were featured) hoping he might reach some form of accommodation. While there, he met repeatedly with Peter Dalton of KLM and Taylor Howard. The objective was one joint show rather than two competitive shows. Schneringer's position was quite simplistic:

"I was here first, and you are moving into my territory."

And SPACE's response was equally logical:

"We are the industry, 'the' trade association which represents all of the participants and any profits earned here by our show benefit everyone in the industry, not merely one firm or individual." Say it fast and leave out 56% of SPACE income going directly to lawyer Brown.

For reasons difficult to dissect following the fact, Scheringer left Orlando after shaking hands on a verbal agreement to meld his Las Vegas event into a joint show with SPACE. Further, at least some in SPACE believed Schneringer was also 'giving up' one and perhaps two additional of his shows for 1984 and beyond in favor of SPACE. There was no apparent reason to believe this, but repeating it made it seem true none the less.

Perhaps the day he shook hands on this apparent agreement, he had forgotten to digest his daily intake of vitamin supplements. Or, perhaps he needed a new transfusion of digested lamb intestines. Whatever the reasons, after returning to Oklahoma, second thoughts. And well he might. If he was really giving up what SPACE believed he

was, there was $600,000 plus headed for SPACE which in 1983 went to support Schneringer's 'habits'. If this continued for very long, he might not be able to afford gasoline for his Ferrari.

Immediately following Orlando, Schinerginer was contacted by Larry James at the request of his employer Bill Young. Young was smarting, because at Orlando, the only overt antagonism he ran into could be traced to SPACE's Brown and a small cluster of Brown supporters. Young felt that when Brown had wall papered the industry with copies of State of Maryland documents reciting an investigation of Young's insurance activities there, Brown had crossed a line. And as the documents Brown distributed did not, in fact, totally exonerate Young (as in fact the state had done), they left the misimpression that Young was a person not to be trusted. By reproducing only a portion of the Maryland Young file, those who bothered to read the file came away with an incorrect assumption. Brown intended that.

So when Young learned, through James, of Schneringer's problems with Brown and SPACE, he carefully weighed the issues.

"If there are two shows in Vegas, the audience will be split," he would later explain to me. "And if we are banned from being a participant at the SPACE show, SFPC will suffer because Brown has me stuck in his craw."

Young had legal resources Schneringer could but fantasize about. It was the difference between paying some Oklahoma City firm $200 an hour and an east coast group $2,500 an hour. But the eastern lawyers knew how to dig up bodies. Such as Brown's failure to maintain the legal status of SPACE. Or even a legal right to the name SPACE.

Brown had faced D-Day jitters previously with SPACE. Back in 1981, when Taylor Howard was the first 'elected' President, a female employee at Brown's law office had felt 'betrayed' by her employer. And she wanted to get even; women spurned can be like that. So one night she bundled up the Brown office files dealing with SPACE into a suitcase and hopped a plane to California, delivering the materials to Taylor Howard. Tay did not ask for the files, was somewhat shocked and then dismayed to find this ex-Brown employee camped on his doorstep, when he awoke, bearing booty. The files allegedly cast Brown's handling of SPACE affairs and finances, and his 'monetary participation' in the pioneering Washington (D.C.) show over Easter 1981, in a non-complimentary light. Howard quickly caved into Brown's telephone demands and the files were shipped by air courier back to Washington. Nothing concrete ever came out of the incident but the 'story' made for amusing late-night discussions whenever industry

people met and Brown was being discussed in absentia.

One had to place themselves into a walnut panelled HBO office and then imagine how all of this 'looked' to the folks who were at least making an effort to serve the home dish market. The trade association was in total disarray, because of Schneringer's attorneys, and they as programmers were faced with a dilemma. They could not stomach Brown, having ample past history with his handling of all previous attempts at negotiations. The SPACE Board of Directors seemed totally under the control of Brown and while individual Board members, such as Peter Sutro, could be rational and businesslike in their private discussions, efforts to have meaningful discussions with the Brown inner circle always ended in threats of lawsuits and worse, from SPACE.

Schneringer's attorneys, in bringing suit against SPACE, had uncovered some interesting trails, perhaps the kind the former Brown law firm employee had attempted to unload on Taylor Howard in 1981. Back in 1981, when Brown handed the then-constituted SPACE Board an ultimatum immediately following the Washington trade show, the Board had responded by creating a new 'Pioneer' category of Board member - $300 a month payments attached. Four months after Pioneers were created, Brown attempted to split the Board into 3 or 4 separate groups, with he personally in charge of each. This was partially successful but not with the intended results Brown hoped for. So he next created a new group called 'Super Fund Members'. The Super Fund would be firms or individuals willing to throw in $2,500 (and more) each month for one purpose - to bring an antitrust suit against HBO. Naturally HBO did not like the sound of this, and as Schneringer's (Bill Young provided) attorneys uncloaked, Super Fund was a 'private trade association' sitting on top of SPACE. It was unanswerable to any general membership, it met separate from SPACE although all of the Super Fund members also sat on the SPACE Board as well. What Brown had done was remove from any outside oversight the biggest funding of all by creating his own, private, trade association with secret meetings, no minutes, and a monthly-multiplying cache of dollars which made SPACE's own finances puny by comparison. Of course when word of the 'Super Fund' did leak out, it was painted by Brown's office as something quite different: "Big dollars from big firms who will insure that SPACE never has a moment of turmoil that it cannot handle financially." Benevolent, mentoring, big brother with a check book. One guess who's signature was authorized for the checks.

Then Brown's coup de Gras. It possibly seemed like a routine request to a Board made up of 23 folks who only actually sat down

together at trade shows 3 or 4 times each year. Brown wanted an executive committee, five total, which he would direct. "Between Board meetings the Executive Committee would be empowered to act 'with the full force of the board' on matters of pressing interest'." As Schneringer's attorneys unveiled, it now took 3 people out of 5 to pass or adopt new matters for the full 23 man board (3 being the majority of 5). Between the Super Fund purse strings and the Executive Committee, Rick Brown had cemented full personal control of the trade association. And it had all been done outside the view of SPACE members and the public. Naughty, naughty.

The Executive Committee between November 1983 and March 1984 managed to embroil SPACE in a number of questionable activities. Here are some that attracted a level of interest from not only the 'trade press' but the communications world overall.

1/ SPACE arranged a free home dish system to be installed at the home of Senator Barry Goldwater. Virtually all of the component parts going into the gifted system came from the firms operated by the five executive committee members. USA Today got wind of this one and was pestering folks like myself for verification of the details before dropping the story into print. This 'small incident' would become a big time incident in mid-March.

2/ The State of New Jersey announced it was assuming 'jurisdictional control' over SMATV (Satellite Master Antenna Television) systems. In response, SMATV operators nation-wide petitioned the FCC to declare that this was a Federal, not state, matter and to therefore 'leave SMATV regulation' alone. But SPACE filed a lone dissent urging the FCC to not become involved, suggesting that each of the 50 states should handle this jurisdiction on their own. It is no sin to be 'contrary' but there were mitigating circumstances. It turned out that the SMATV system in question, cited by the New Jersey regulators, was located inside the cable TV franchise area controlled by a large firm known as Suburban Cablevision. It also turned out that Suburban was represented in Washington before the FCC by Richard L. Brown's law firm. The filing, purportedly stating the position of SPACE, was in fact never cleared by any member of either the SPACE Board nor the Executive Committee. Brown, pretending he was acting for SPACE was in fact using the 'name' of SPACE to espouse the position of his client Surburban. I conducted an informal 'straw poll' of the full SPACE Board and found - not to my surprise - that had the matter been brought before either the Board or the Executive Committee, SPACE's official position would have been just the opposite of that purported by Brown.

3/ The full SPACE Board had created a committee to investigate hiring a 'general manager' for the trade association. The new GM, when the position was being defined, would report directly to the full Board. Quietly, Brown convinced the search committee there should be not one but two people hired and both would report to him directly and he would then report to the Board. Predictably, for six months of searching each candidate the committee located was taken around to Brown for approval and - not one passed his muster. This bought Brown 8 months of additional time to restructure the Super fund, Executive Committee and internal workings of the trade association's office in Washington. Ultimately the original search committee resigned in frustration; another Brown victory. Yes, a replacement committee did finally locate a new general manager, simultaneous to revelations concerning Brown's sloppy handling of the SPACE tax and name registration status. This time, under intense pressure to straighten out SPACE's right to exist, he acquiesced to the selection; a man named Chuck Hewitt.

4/ Brown's office ineptness to deal with mundane things such as maintaining SPACE's legal status was a classic case of being 'penny wise, pound foolish'. Out of nearly a half million dollars collected during 1983, Brown's office had assigned only a single (female) employee to 'full-time' SPACE work. Her primary duty? Making sure every member paid his or her monthly dues, promptly. She was paid out of general revenues, not the $235,000 which went directly to Brown personally for his legal and lobbyist work.

5/ Brown, again wearing the 'official' SPACE sombrero, created an elaborate filing with the FCC asking that agency, "Declare by its powers of Federal pre-emption that all local zoning ordinances against TVRO antennas are null-and-void." It might have been a sound approach to a growing challenge but there was one missing element. Brown had neglected to ask the SPACE Board for input or approval before creating the filing and in fact all it accomplished at the FCC was to create a period of decided uneasiness. Suddenly, if they followed Brown's request, the FCC would be at loggerheads with every town and city and county in America, 'meddling' in a power they believed their own; zoning.

In CSD for May 1984, I wrote:

"What has transpired since January is that SPACE has changed its name from SPACE to S.T.I.A., gotten involved in numerous contracts and lawsuits, has openly courted the Canadian association C-SPACE to cosponsor a trade show in Canada, created and published public

financial statements, hired a new general manager and who knows what else ... all without holding a meeting of the Board of Directors."

The seeds of TVRO's destruction thus sown, it was but a matter of time - perhaps a year at the outside - before the industry that was TVRO would collapse like a star going Super Nova, inward on itself. For the first time since I conceptualized 'home dish systems' in 1978 there was a decided gnawing on my innards. "This thing is going to implode."

I attended the March (17, 1984) meeting as a member of the SPACE/S.T.I.A. Board of Directors, and half way through the 'open to the press and public meeting' reached a personal decision. Bob Dushane (of Janeil Antennas - which I had revealed in CSD were not holding up 'in the weather'), a $2,500-per-month supporter of Brown had the floor. He wanted to call for a vote that SPACE/S.T.I.A. would schedule a September show "right on top of Rick Schneringer in Nashville" to "show him a thing or two." Right. Here the trade association was locked in a legal battle with Schneringer over the Las Vegas show, and Dushane wanted to hit RS with a second 'over the top of' event. If throwing up my breakfast would have been appropriate, I would have done so. Worse than that, a majority of the Directors, so intent upon "teaching Schneringer a lesson," seemed to be shaking their heads in agreement.

It happened I had a Radio Shack $60 cassette tape recorder in front of me, taping the full proceeding. So too did Lloyd Covens of Multi-Channel News, a competitor to CSD and one of the few 'trade journalists' I thought capable of working out the bottom line of the SPACE 'story'.

Brown to me across the table. "I believe those tapes could be subpoenaed; I request that you turn them in to me." This in the middle of a totally open (to anyone who cared to drop in) meeting! A totally wasteful-of-valuable-time 45 minute 'discussion' of my taping the meeting ensued. When my tape ran out, I pointedly did not change it but Covens, not on the Board and sitting against the wall with his own recorder, kept on feeding blanks into his machine. After 45 minutes, the discussion moved on without a 'decision' on handing the tapes to Brown.

My decision was not easily reached. I would resign from SPACE as a Director, and with a full scale election coming up in September, rerun as a 'Pioneer' ($300 per month) member. At this point in time I was being accorded a modicum of respectability as one of three 'Consumer' (as in TVRO user) Board Members - a 'Member for Life', perhaps as an honorarium, voted in 1981. Electing to pay the $300 per month fee was a political move - why should I benefit from a 'free ride' as a 'consumer

representative' just because SPACE had originally been my idea and I had founded it in 1979?

In CSD for May 1984 I quite carefully reported, " I have chosen, given several options, to attempt to reform SPACE from within. There have been several people who have come to me suggesting that we start another trade association. We already have a trade association. It is suffering from poor judgement. There are 'insider deals' which threaten to make national headlines and there is a manipulation of the membership, for political purposes, which may become 'terminal' if not stopped."

The Board at this point had 23 members, cutting across Rick Brown's categories (Consumers, Dealers, SMATV, OEMs). Pioneers were the driving force and a majority of these were also members of the super-secret 'private' Super Fund group. Past 'elections' had been handled by Brown's office in a not terribly clever manner. My own lifetime appointment as a representative of 'Consumer Members' aside (which guaranteed my automatic relection, Brown or someone in his office prepared the ballots. Not many members actually bothered to vote, and those who did were mailed a ballot consisting of names arranged in an order prescribed by Brown's office (if not Brown personally), and the '25 words or less' describing each candidate were perhaps massaged, and structured by the same individual (Brown). Several who had offered themselves for a Board seat in previous elections had complained about their position in the non-alphabetical candidate sequence, and, the (SPACE selected) words used to describe their aspirations and skills.

In resigning, I suggested that a 'slate of 12' be formed, for which I would offer but not insist I be one of twelve, with the 'slate of 12' (the majority on a 23 men board) allowed, by pressure on SPACE/S.T.I.A.'s office, to include with the ballot our own 'Position Paper', speaking for the 12 as a whole.

Naturally this did not go down well with the Super Fund or Pioneer group. Nor Brown.

CSD for several months in mid 1984 would promote the premise that a new group of 12, a 'new' majority on the SPACE Board, would 'clean up' the problems by not being totally under the thumb of the existing members. It would take some 'guts' and intestinal fortitude to become a member of the 'slate of 12'. Anyone signing on would immediately become an outcast from the clique running SPACE/S.T.I.A. and that would extend to such things as being able to deal with members of the Board for equipment. Peter Sutro, an early 'count me in' for the

12, almost instantly found his orders for equipment filed through normal channels with the existing members of the Board were stuck at the 'end of the line' and it soon became apparent that for his boldness he was being denied access to hardware his business sorely needed.

Greed, avarice and either a loyalty to, or a tremendous fear of, Rick Brown was the root problem. Through April to July, the power of the 12 grew as new candidates threw caution to the winds and signed on board. Brown of course had an ace up his sleeve as we shall see.

HBO was trying its best to sort out 'who they should talk with' through this period. Ideally, for the cable programmers, there would be some level of accord - agreement - with the home dish industry before they sprang CBD. But the industry was so badly split and emotions ran so high that deciding who to continue a dialogue with was difficult. Their past experience with Brown was still churning in their stomach, so they elected to sit-it-out but continue 'feeding' me with information which they hoped might pave the way for their direct-to-home-dish sales program.

"Coop was my 'hero' in 1984," confides Tim Heinrichs, one of the few survivors of the C-band TVRO industry still around (selling home dish equipment) in 2003. "He stood for what was right and righteous and when CSD arrived in my mailbox twice each month, I locked the door to my office, shut down the phones and buried myself in the latest news."

I expected 'Peter Sutro treatment' when I resigned from the Board but for every Bob Dushane who pointedly took his advertising dollars to a competitor such as Dave Wolford, there were two replacements. One of the major ones was Japan's Uniden Corporation.

During the expedition to Sri Lanka, Uniden had hosted the group during a Tokyo stopover that included a full upper echelon dinner party hosted to introduce the American contingent to the very best minds in the Japanese microwave world. I met and talked extensively with people who were a legend in their respective fields, spanning Japanese banking to microwave system design and their world-famed NHK network. This taught me several important points about Uniden. First, they were so well respected in Japanese business circles that some of the country's most famous technical and banking business people were drawn to the special dinner party, ostensibly to meet 'the leaders in American TVRO reception'. There is something unique about hobnobbing with this level of individual, wearing traditional 'Japanese Happy Coats' as honored guests, and being asked to destroy a wooden caste of high quality Saki with wooden mallets to the delight of a crowd

numbering 500 or more watching from a ballroom decorated with ice carvings that would have been right at home in Las Vegas. Second, they were deadly serious about invading North America with C-band TVRO hardware. John Lane, their North American born business advisor for the TVRO project, was one of the most impressive communication business people I had ever met to that point in my life. One fact alone stood out about the man - as the CEO of Kansas City's Midland International in the 70s, his Midland had sold more CB radio products year after year than any other single company. Lane was obviously a leading edge kind of guy who could work out the challenges of a new field, such as home dishes. I liked him intensely and was more than pleased he would join us on the expedition leg into Sri Lanka. By mid-1984, I would regret he was living in Hong Kong full-time and his special people and technology skills could not be tapped to help set SPACE on a new idiot-proof course.

Uniden very carefully matriculated into TVRO. They established a technology center in Indianapolis (in an ex-RCA facility, abandoned when RCA moved production offshore to places such as Japan!), brought in a capable Japanese manager who they re-enforced with the very best American management people they could locate, including Guy Davis who had started with Dave Fedric and then upgraded to Dave McClaskey's Intersat before stepping into a top position with Uniden America.

Uniden was already a (if not yet an American household) 'name' in the USA, selling CB radios, police scanner receivers, portable telephones and a host of consumer appliances through several levels of retailers including Radio Shack and Sears Roebuck. These guys (and gals) were serious - John Lane once confided in me, "Uniden has spent more than a million US dollars just to prepare their entry into this marketplace." I believed it.

Their support of CSD, both the mid-month CSD/2 and the main publication, was significant. And they paid their bills. Promptly. But they, or rather John Lane who brought with him thirty-plus years in upper level consumer electronics management, was plainly troubled with the 'condition' of the industry's trade association. We spent many an hour sipping Scotch and searching for some common-sense answers.

He told me a series of stories about 'the wild-west days in CB radio' when a handful of equipment importers and sellers 'gave the industry a black mark' in the eyes of the FCC and ultimately the consumers. "CB Radio died almost overnight, without warning; Midland went from shipping more than a million radios a month to under 50,000

almost as fast as you could snap your fingers. All it takes is one bad turn of the road."

I would remember those words in a year while I attempting to retrace our own pathway to destruction.

Uniden came close to shutting down their TVRO marketing in North America just as it finally began, following 18 months of extremely careful (and expensive) planning. During the January (1984) Consumer Electronics Show, where they first displayed working home dish equipment to the dealers and distributors of America, the SPACE world exploded; Brown lost the name 'SPACE' and Schneringer's attorneys served their lawsuit papers. For several days, an asbestos lined series of panic messages flew back and forth between Uniden Tokyo and Uniden USA as the conservative homeland Japanese pointedly asked, "Is this the end of the C-band TVRO industry???" Indeed it was, but on the ground in Las Vegas they could not separate the trees from the forest. In Tokyo, they were prepared to take a million-dollar-bath rather than chance a much larger future loss and of equal importance to them, risk 'losing face' with their bankers and Japanese government supporters. By (very) long distance communications, I counselled them, "this is an aberration and it will pass." I was wrong; the seeds of self destruction would not be denied

In the case of TVRO, it took more than 'one bad turn of the road' and for the remainder of 1984, while the industry struggled at every possible level, the consumers continued to stand in line to buy ever smaller, ever cheaper home dish systems. Sales by midyear were heading for the 40,000 per month region. HBO now had a double problem. If they continued to plant chaos stories concerning the coming of scrambling, that could reduce the number of systems being sold. And with their C-band-direct distribution plan, every system not sold would be a CBD customer they might never reach. On the left hand, cable firm affiliates of HBO were screaming louder every week demanding that scrambling start and that HBO continue making as much noise as possible about the 'piracy' of their service. A number of HBO execs made this line of reasoning their creed. But higher up the HBO food chain, the right hand inside of HBO, where CBD was slowly evolving into a mature business plan, there was far less support for this approach. In fact, HBO would replace a key top level management person in mid-1985, and for a period of several weeks the future of CBD was in grave doubt. Internally at the nation's most successful pay-cable provider, CBD was a corporate thorn in the side creating deep rifts within and dismaying their primary income source, cable TV operators.

M-A Com's double dealing

M-A Com's Linkabit system, under contract to HBO, originated at a San Diego firm which M-A had gobbled up during its 'Pac-man' growth phase. Linkabit was a 'software house' lacking the internal discipline to turn their specialised encryption technology into a functional system. M-A Com brought that, and millions of new resource dollars, to San Diego. But the marketing brains remained at Burlington (Massachusetts) where the concept of selling first to those who would-be-protected, and subsequently to those who would uncloak the protected, was born.

Linkabit as we saw demonstrated in Birmingham, England in September 1983 was a dream machine - totally capable of defying 'hacking' and seemingly capable of turning a weak signal into a strong, clear one. But the cost of the system, measured in how much it would cost each receiving system to decrypt the images and sound, was horrendous; so great that nobody but a major network with deep pockets could afford it. As I spent more and more time at M-A Com during 1984 and 1985, it fell upon my shoulders to create comprehension of how the original Linkabit system that was so impressive would be 'cheapened' so that HBO and home dish users might afford it.

This reminded me of a Los Angeles based manufacturer of TV sets in the 50s; Muntz TV. Earl 'Madman' Muntz was one of those California bred CEOs who allowed himself to become the 'butt' of local lore jokes in return for capturing a significant 'market share' of TV set sales. Madman's television and radio advertising from Los Angeles went like this.

Announcer: "This is a brand name television set. It costs $499."

Madman: "And this is a TV set that I sell for $299. Can you see

any difference, other than saving $200?"

Announcer: "Madman Earl Muntz has brought the price way down to own a television set in your home. He will save you $100, $200, and more on a big screen 17 or 21 inch TV set!"

Madman (surrounded by TV technicians working in a laboratory): "I told my boys, start cutting out parts. Take out every part that you think is not necessary because each time you eliminate one of these little fellers," (holding up a resistor), "that saves folks money!"

Announcer (appearing on a TV screen being photographed): "Some of the best technicians in the TV world have been engaged to reduce to a bare minimum the number of parts in a Muntz TV set. There is no compromise in picture or sound quality - merely the recognition that many times a TV designer gets carried away with his use of parts."

Madman (also appearing on a TV screen being photographed): "When my engineers reach a point in cutting out parts that the picture or sound quits, we know we've gone too far." (screen goes dark and Madman's voice continues) "OK boys - put that last one back and freeze the design."

Announcer (initially with a dark screen, then the image reappears to sound effects of scratching): "So there you have it. The secret of Muntz TV sets. We reduce to a practical minimum what goes in, because (picture pops back on) this saves you big bucks."

Madman (standing in a showroom surrounded by many different TV set models): "$299? No problem. $279? We are working on that. Your local Muntz TV outlet has a choice of models and screen sizes in stock."

The picture goes dark, the sound has a brief frying noise. The voice of Madman as the commercial closes.

"Ok Herman, put that last one back. $279 is in here someplace; we just have to find it!"

Linkabit's challenge in bringing the cost of a home CBD descrambler to market for the target price of $400 was a parallel effort to Madman Muntz TV set designs. Muntz had only resistors and capacitors to chop out (and the occasional vacuum tube). Linkabit had software, the encryption language which provided the basis for decryption, and the parts which Madman loved to cut out of circuits.

M-A Com had a secret (but not for long) internal marketing plan. HBO was insisting, as best they might, that the final Linkabit CBD decoder design 'interface with' (as in work with) as large a percentage of the total then-existing universe of home satellite receivers as possible. Ideally for HBO and their CBD partners, every receiver out there could

connect with a cable to a new Linkabit home decoder and then the decoder would connect to the television set. This reduced to the projected decoder cost, $400, the total initial investment of the consumer opting for CBD. M-A Com had another plan which quite on purpose they neglected to 'share' with HBO.

M-A Com wanted none of the existing receivers to work with Linkabit. Because? They had prototype replacement receivers, with the Linkabit decoder in-built, ready to offer to the marketplace. If 100,000, or 1,000,000 homes wanted CBD and a new M-A Com receiver at a user cost in the $900 region was the entry payment, M-A Com would be raking in the bucks. They knew that sooner or later HBO would force them to 'license' other competitive firms (such as Channel Master) to make integrated receivers but for the first 30 or 180 (the longer the better) days of CBD if the only consumer choice was a M-A Com integrated receiver, well - how do you spell monopoly? $$$,$$$,$$$ or bigger, is how.

This 'evil empire' business plan was not obvious to anyone, initially. To show a willingness to 'assist' receiver manufacturers, HBO insisted that representatives from M-A Com, as the 'source of Linkabit', visit in person each and every manufacturer of satellite receivers in North America (and Europe - Luxor, Japan and Korea). The purpose of the visits was to teach the competitive receiver manufacturers what they needed to know to build receivers which would either be 'mateable' with stand-alone Linkabit CBD decoders, or, at some future date include as an in-built circuit the ability to plug-into the receiver's guts a Linkabit supplied descrambler module, to be supplied by M-A Com, of course.

M-A Com saw this as a double opportunity. If the receiver manufacturers modified their existing receivers to allow a Linkabit descrambler to plug in, this would create more sales for the stand alone descramblers. If the receiver manufacturer agreed to make huge (physical and electrical) modifications in their receivers to allow a decoder to 'nest" inside of the competitive receiver, M-A Com won again - they would sell more of the integrated units.

And now the clever part. To facilitate this 'introduction to Linkabit descrambling', HBO and M-A Com established a special transponder (channel) on a satellite which ostensibly was 'testing' Linkabit. When a M-A Com representative called on a facility building home receivers, they hand carried a working Linkabit (prototype) decoder. This made it straight forward for the M-A Com fellow to connect his decoder to the target firm's receivers and 'test' whether the existing receivers might be 'compatible' with the M-A Com provided hand wired external decoder.

Subterfuge. By playing some 'Madman Earl Muntz' games with the sample Linkabit decoder, it was possible to create a scenario where nobody's existing receivers would work with Linkabit. And this meant the receiver designer, if he wanted to be a part of the CBD world on the horizon, would have to make some circuitry changes in his existing products. This was a potent message of doom and gloom.

"My receivers won't interface with Linkabit," moaned the Arkansas manufacturer to me on the telephone. "I'm going to have to do a complete redesign for all my future production models."

Or he was given another option.

"If I agree to create a design that will be capable of taking their plug-in descrambler that will sit inside of my receivers, I'll get some engineering and monetary help from M-A Com."

M-A Com had already worked out that from a profit perspective, the firm would be far better off if nobody built receivers that worked with stand alone outboard decoders. It was economically preferable to 'the firm' that all receivers use the nest-in, integrated M-A Com version.

It was a classic case of Madman Earl Muntz design. The nest-in, integrated design had no power supply; it would use the host receiver's power supply. This saved M-A Com around 30% of the total per-piece cost, and at the same time transferred to the receiver manufacturer an assumption of that cost. Madman would have loved a TV set design that stopped short of including a picture tube, leaving that to the consumer to supply!

Alas, these were confusing times. Each manufacturer visited by M-A Com had to sign a complex 'confidentiality' agreement which if taken literally prevented Andy Hatfield (Avcom) talking with John Ramsey (Ramsey Electronics) about any aspect of the visit. And there were penalties for disclosing any of the 'secrets' on the Linkabit interfacing. The most severe had potential dollar fines for disclosing information and a cancellation of the formal agreement which M-A Com negotiated with each receiver supplier, which would severely compromise that receiver manufacturer's ability to compete in a CBD world.

Because of these confidentiality agreements, and a paranoia at the M-A Com level that the real intention of their plan would be exposed, working through the layers of 'secrets' took me several months. By midyear (1984) I saw the pattern I feared from the outset would be there. M-A Com quite deliberately was creating a scenario which would chase perhaps 75% of the pre-CBD receiver manufacturers out of the home dish world. As CBD was introduced, M-A Com had maybe ten percent of the total market. If their plan went as they planned, that

number would jump to over 50% within 12 months. Shades of Taylor Howard's Chaparral antenna feeds!

HBO was not tuned-in to this plan and one of my significant challenges as I pieced together disassociated evidence was to make a coherent presentation that would force HBO to look at themselves in the corporate mirror and once properly educated decide whether they wanted to be a part of this market power grab.

When M-A Com's travelling road show conducted by sales-engineers called on receiver manufacturers, they had a very impressive presentation. First they unpacked a prototype CBD descrambler and invited the technical guys at the receiver manufacturer to hook up their existing receiver models. With a CBD test encryption channel operating, it took around ten minutes for an engineer to determine whether his existing receiver would produce encrypted HBO test channel service. Almost none did; M-A Com's intent of course.

Ostensibly, the decoder required a certain level and quality of 'raw base band signal' from the receiver to play. It happened that this particular type of signal only existed through a receiver jack on a small percentage of receiver designs - there being no real economic reason why receiver designer's should have included such a 'jack' prior to the CBD announcement. If the jack (socket) did exist, then performance came down to the internal receiver circuit design. Those without a 'jack/socket' were immediately eliminated; those with the output ran into M-A Com's deliberate design of the Linkabit system which required 'special treatment' of the signal internal to the standard receiver before it would play through the standalone decoder.

Linkabit system designers had carefully, deliberately, looked at what made a TV picture look like a TV picture. Then they sat down and created a number of small, Mad Man Muntz class, circuit changes so that the TV picture transmitted through Linkabit was just enough different to require receiver circuit modifications before the decoder would function properly. They did this so that short of random chance, nobody's receivers would work with Linkabit - thereby arriving at the desired goal. All existing receiver owners would be required to purchase a new (preferably M-A Com) receiver.

By insisting that each firm manufacturing home dish receivers sign a 'confidentially agreement' before they arrived for a show 'n tell, and constantly refreshing the receiver firm's employees of the downside of breaking this agreement, M-A Com tried very hard to create isolated islands of expertise. Ramsey could not talk to Hatfield, KLM could not talk with Uniden; or, they would lose their access to M-A Com infor-

mation and support. I had to talk extra long and extra hard to get these folks to discuss what they had been told with me. Nobody would 'spill' the full story leaving me with two words from one and seven from another and five from another - a giant jigsaw puzzle - I had to recreate without knowing for certain-sure what the final picture would be.

An example of how this level of deliberate design subterfuge affects consumer electronics. Jump ahead to 2002; I lived (as I had for 12 years) in New Zealand. In the remote outback of Kiwi-land where I live, there is precious little on the FM (radio) broadcast band. So I assembled a very low power (under 1 watt transmission power) transmitter which under New Zealand regulations I could operate without a Government license. I did this partly for my amusement, but mostly because my wife Gay is a fan of NPR (National Public Radio) from America. On one of our cable TV channels here, we carry NPR which comes our way via satellite from America. When we are driving around our local area, having NPR on our Jeep's FM radio seemed like a nice thing to do; a bit of America way down here near the South Pole.

My friend John Ramsey, now retired, provided me with a suitable transmitter which has been designed and built to North American standards. One might think that "FM radio is FM radio" no matter where you are in the world. Wrong. In fact, FM radio in Europe (Australia, New Zealand) is quite different than FM radio in St Louis or Charlotte. Somebody, decades ago, has determined that the sound portion of FM for Europe - plus will be treated just enough different from FM radio in St Louis that if you employ a transmitter designed for St Louis here, the sound coming out of the European built Jeep's dash mounted speakers will be 'tinny' and not very FM-like at all.

The technical solution is simplicity itself, but it is the same genre of 'fix' which M-A Com deliberately built into Linkabit to create a situation where nobody's receivers (but their own) would process or produce encrypted-HBO properly.

To 'correct' John Ramsey's small FM band transmitter, so that our European-bred Jeep receiver would produce non-tinny sound, involved one tiny 1/4 watt resistor change-out. Suddenly, NPR-New Zealand magically sounded like NPR-St Louis.

M-A Com knew that if a resistor or two was changed in the Avcom, KLM and other existing satellite receivers, their Linkabit would function properly. But they neglected to pass this information along to the individual receiver designers hopeful that as a result, they could wreak havoc in the receiver field. They came close to reaching this goal.

Meanwhile on Johnston Atoll

The man who would provide invaluable assistance to me and the industry in unmasking this subterfuge was Doug Dehnert of Maspro (USA). Doug's friendship would prove invaluable during 1984 and after; he was my 'shadow cabinet' just as Rick Brown had his own inner circle of big money donators to the SPACE Super Fund. Dehnert was far more than 'simply' a fellow traveller to Sri Lanka who happened to have a bad time with Indian Customs personnel.

"Do you know where Johnston Island is located?" he asked me one day on the scratchy telephone connection to Provo. Every ham radio operator in the world knew where 'KH3' was located; a tiny (46 acres originally) outcropping of coral some 700 miles south-west of Honolulu. Johnston during the 1970s and 80s was a refuse dump for World War Two, Korean War and Viet Nam nasty stuff like 'Agent Orange'. When each of the conflicts ended, the American military had thousands of tons of mustard gas and other debilitating chemicals 'left over', unused. They hauled it to Johnston where it was stored inside of concrete bunkers surrounded by electrified fences guarded by marines wearing gas masks; Nevada or Kansas being 'politically incorrect' for such storage. Johnston in 1984 had an eclectic mix of military and civilian contract employees, varying between 1,000 and 3,000 total, on what had evolved into four separate largely man made atolls now nearly 600 acres in size.

"They have TV on Johnston," continued Dehnert, "and USS has a contract to add new channels and make it work better. Do you want to go with me to do this?"

Does a dog have fleas? Of course!

The July (1984) front cover of CSD would carry a color photograph of Dehnert and I standing in front of a precariously perched 30 foot satellite antenna rising above a building on Johnston. What made the photo 'unusual' was that each of us had our faces totally obscured by a US Government issue "gas mask."

Dehnert was in tall cotton in 1984. His Maspro product line was selling faster than he could obtain the product from Maspro-Japan, his prices were at the peak of their growth cycle, and one of his special joys was a six seater private jet powered aircraft which could whisk he and his family to Provo in just over an hour from Fort Lauderdale. We would use it to start our journey to the mid-Pacific. By Honolulu, we were forced by the US Government to transfer to a 'commercial' flight operated by Continental which made a twice weekly circle from Hawaii to Johnston, then to the Caroline Islands, Guam and back to Hawaii. I knew the Carolines - having given serious consideration to moving there from Oklahoma in 1978-79. But the 18-plus hour flight from Ponape to Los Angeles was a killer and for this reason alone I had discarded the option; twice a month back and forth to Los Angeles seemed like something pretty dumb and we settled on Provo.

Johnston's TV system was a mixed bag of military and contractor. The US military, Air Force and Navy, was significantly outnumbered on the island(s) by one-to-three year contract civilian personnel who ran the infrastructure. Johnston was considered 'hard duty' by the military largely because there was almost nothing to do there except work and enjoy the man-made white sand beaches. The Military folks operated an AFRTS (Armed Forces Radio & Television Service) TV channel, and the 'broadcast day' on TV channel 8 was short and mostly made up of old (and older) videotapes sent out from Hawaii. They had a satellite service for live news and sports but the AFRTS personnel I met while visiting were unimpressive and mostly at the bottom of a tall ladder of achievement. The civilian contractor, sort of like Halliburton under the George W. Bush presidency, found people who could not function in Miami or Des Moines willing to spend long periods of time growing potted vegetables, drinking beer, and keeping the power plant running or the kitchens humming. Into this strange atmosphere various Government and military officials flew in and out on a weekly basis to verify that Agent Orange was not leaking into the lagoons and some foreign power had not landed in the dead of night to take the island hostage.

Dehnert had negotiated a contract to modernize the civilian TV system. As could only happen in a military environment, someone

years prior had located a 30 foot diameter ex-radar dish antenna from far away (Greenland) and using resources only found in the military managed to have it disassembled and shipped to Johnston where local contracting personnel had re-erected it on top of a two story communications 'hut'. By the sheerest of luck and through no real skills, the local folks had somehow managed to locate a satellite beam intended for Hawaii and using a makeshift transmitter they were distributing at very low power HBO movies to civilian and military personnel living in barracks erected in the 1950s. In this scenario, AFRTS was a very poor second to HBO movies.

The civilian contractor had a vested interest in keeping its' socially misfit employees 'happy', or if not happy, at least tranquil. So somehow they had raised cash money to 'improve' the 'satellite TV system' and most of that was headed for Dehnert's pocket provided we could make their single channel of HBO programming multiply by 3 or 4 times and coincidentally improve the reception so that folks could watch the programming on rabbit ear antennas in their barracks.

Doug depended upon my Provo experience of doing something almost identical as a backbone to his plan. I knew this going in, expected nothing more out of the 'trip' than an 'unusual experience' and something to write about in CSD. I would not be disappointed.

One landed on Johnston after sharing a Continental flight with pigs, crates of merchandise, and a ragtag group of people headed either to Johnston, the Carolines or beyond. It was Ed Hegner cubed - a 727 size aircraft divided in half internally with squalling animals and merchandise (including fresh fruit and vegetables for the personnel on Johnston) in the rear and unconventional three abreast seating in the front. Nobody was allowed off at Johnston, a high security US base, unless you had appropriate paperwork. We of course did - in fact the 3,000 or so folks living there were wildly excited about our arrival.

"Here is the routine," began the Air Force boss-guy. "These are your gas masks and survival kits," he continued handing over a ten pound knapsack filled with the sort of gear one would expect to see on a battle field.

Sixty minutes later Doug and I had been indoctrinated and tested for our comprehension. "When you hear three short blasts on the sirens, immediately break out the masks and place them over your face, like this" we were shown. Using a chromed whistle on a chain around his neck, he 'blew' three short blasts and we were timed for how long it took us to get the masks out of the sacks and onto our faces.

"Your beard has to go," he told Dehnert. "The mask is not fitting properly. No beards here!"

Dehnert's experience in India served him well at this juncture. "If my beard goes, so do I," he retorted. "And so does your new TV." The compromise was a piece of official US Government paper with Dehnert's signature on the bottom, totally exonerating any claims Dehnert (assuming he survived a 'gas incident') or his wife and family might bring against the US Government (et cetera) should he 'meet with misfortune' while on Johnston. For five days we would carry the 'emergency' kits with us full-time on our belts. Yes, every now and again one of the mustard or Agent Orange or who knew what containers would develop a leak, or blow up and the entire facility would go to 'condition red'. Fortunately, not while we were there.

Between the day Doug called me with the invitation and the landing on Johnston had been barely two weeks. During the period of time, unlike Bob Behar who had supernatural skills and connections, I had used everyone I knew of importance to round up the TV transmission equipment my scratch pad outline had listed. A California firm, specialists in solid state transmitters, had agreed (because Dehnert was waving large bucks in front of them) to burn the midnight oil creating prototype equipment for us. I chose them to do this work for two reasons: First, they were in Los Angeles and we could, when passing through on the way to Honolulu, detour for a few hours and pick up the equipment on our way west. That added a couple of days of design and build time to the short spaced time frame. Second, I had recently bought some of their equipment for Provo and while it was barely turned on when I left, it seemed to be well made and properly designed.

We broke the challenge into two separate but parallel paths. Dehnert would tackle the 30 foot antenna, using special equipment he had manufactured in his Thief River Falls (Minnesota) shop to turn it into something that would work better than an ex-Greenland radar dish. Simultaneously, I would tear down their single channel low power transmitter and wire up a four channel medium power transmission system to be fed with off-satellite signals which Dehnert believed would be 'perfect' when he had finished with the antenna retrofit.

A subtropical island in the remote mid-Pacific, inhabited with around 3,000 folks who could not 'make it' in Omaha was weird enough. Add spice to it - everyone walked around with a gas mask bouncing on their thigh, there were around 20 women in the civilian contractor corp (I'll save you the math - 150 to 1), the marines stood guard with large weapons 24 hours a day around the quadruple rein-

forced meter thick concrete bunkers containing the nasty stuff, and the predominantly male inhabitants were significantly unmarried and 'paired' - and you have just the tip of the iceberg. The Air Force Commander had a special feel for keeping his natives at bay. The bars (two) were open 24 hours a day (the explanation being, "we work shifts and therefore there is no day or night in the traditional community sense"), the cafeteria served the best food in the largest quantities I had (or have) ever experienced in my lifetime, and the recreation halls (three) had every possible diversion including full facilities for boating, fishing, diving, snorkeling or bathing on the manmade beaches. This was Club med for guys who liked guys, or if they didn't like guys were willing to take a Randall Odom 'number' to be next with one of the twenty women on island. But their TV was terrible, absolutely awful, and Doug and I were the most talked about, anticipated, visitors in a year or more.

Dehnert found major problems with the 30 foot satellite dish. Fortunately for him, they trotted out a 100 foot tall crane and a crew of marines to help him move 10 tons of rusting steel around until he got it working properly.

I found bigger problems with the TV retransmission equipment. Our California supplier had neglected to tell us we had apparently arrived to pick up the equipment perhaps 24 hours too soon. What he handed to us for the flight was something less than complete and worse than that, none of it had ever been turned on, even for a 'smoke test', before going with us. Everything I plugged in either failed to work at all, or, exploded in my face in a puff of smoke and a resounding 'bang!' as capacitors and other parts found electricity harmful.

It happened that on Johnston there was a sizeable 'amateur' or 'ham' radio station, a hobby facility for those electronic nerd guys who tired of chasing grouper and tuna with spear guns in the lagoon. I had stopped there the first day on Johnston, making a mental note of the 'assets' on hand. Because it was loosely affiliated with the US military, the same 'system' that had located a 30 foot ex-radar dish for their use in far-away Greenland was routinely supplying large wooden crates filled with miscellaneous electronic devices to the ham station. There I found sufficient parts and test equipment to encourage me to try rebuilding what the guys in Los Angeles had so completely failed to do properly.

Like any good epic, this one ran right down to the final 12 hours on Johnston. Doug managed to get me suitable high quality satellite channels (HBO, Showtime, Cinemax, WTBS, CNN and others) and

using segments of the original but blown-up equipment we brought with us married to parts I liberated from the ham radio station warehouse, we got four channels of TV running with sufficient power that I was able to make a 45 minute tour of the barracks lugging a battery operated TV to verify that anyone living where I tested should be able to do the same thing with their own TV sets. Working through the dinner and post-dinner hour on the last possible night there, we missed the usual 3,000 calorie steak and trimmings dinner. Not to worry. One of the 20 women on Johnston, a TV fanatic when she was not otherwise gainfully employed, heard of our plight, reopened the cafeteria and prepared us a huge 'thank you for your TV' meal after raiding the base commander's private stash of 4 inch thick Texas steaks. She also offered us 'a special dessert' but Dehnert and I being both terribly exhausted and, happily married, passed. It might have been a close call; she appeared in a wet T-shirt carrying two cans of Reddi-Whip with her invitation.

Footloose and almost fancy free

If there was a master plan, it was buried so deeply that even I did not recognise it. With the children at a private boarding school 45 minutes from the Exec Airport office, and Susan jumping back and forth between St Louis and Florida, I was torn between time 'in the office', visits to the children's St. Andrews School, jet setting and hopping back to Provo at least for a few days every now and again to see if anything was left of 'the empire'. A young man from Ohio, Marshall Foiles, was skilfully in charge of the new cable system build and Satec's John Ramsey had joined me and a handful of locals in the investment. As 1984 had wound down, David McClaskey of Intersat pulled off a major coup for home dish systems by getting himself involved in Y.A.P, the Young Astronaut Program, which was a Reagan White House initiative. On our November 1984 front cover, there was President Reagan on the South Lawn of the White House perfectly framed in front of an eleven foot custom painted Intersat dish, with such celebrities as (then young) actress Drew Barrymore (E.T.), columnist Jack Anderson, TV personality Hugh Downs (ABC) and Astronaut Gene Cernan participating.

McClaskey had learned of the government plan to place 20,000 satellite dishes into rural and suburban schools nation-wide when the proposal took only one side of a sheet of paper to describe. Being a smart fellow, he immediately worked his way into the project through the efforts of his Board of Directors member Astronaut Cernan. Someone had a concept that if lots of schools had dishes, a special 'channel' to share science and the insider's view of NASA could be used as a catalyst to evoke interest in such lifetime pursuits from impres-

sionable students within the age range of my children, Tasha and Kevin. This particular projected attracted seed money, $250,000 a pop, from Pepsi, National Geographic and others desirous of being proclaimed the 'official sponsors' of Y.A.P. It was to be a non-sexist mix of boys and girls, a regular (satellite delivered) TV schedule of in and after school events, merit badges patterned after the scouting movement for projects and completion of learning courses. A brilliant idea that sadly lasted about as long as it took for the TV networks attending the event to erase their 3/4" tapes and move on to the next day's paparazzi coverage.

"Would you like to go along, to the White House?" asked David. This from the guy housing my wife in his spare bedroom. After Johnston, it sounded all very 'American'.

I'd been there before; the White House; back in the days of CATA and the cable TV battle for gaining the support of Congress for the nation's smaller more rural cable TV systems, several conference sessions had attracted my attention. Yes, it was then (and, again in 1984, would be) very much like the TV epic, 'West Wing'. But I'd not been there walking alongside a national hero, Cernan, who knew short cuts through virtually every section of the security conscious facility. It was a bit like walking through the gates of Disneyland with Walt himself leading the way.

The full day of activities involved a series of 5, 10 and 15 minute meetings with special assistants to the President for this, that, and the other; standing just off camera frame while dozens of TV cameras cornered Cernan for his take on the project, a ceremony at the Smithsonian, and finally on the South Lawn the official announcement by the President for the Young Astronauts Program. It turned out the 'bright person' who conceptualised the project was newspaper columnist Jack Anderson who confided in me he was concerned that his 11 children (a football team!) had not had the opportunity when growing up to properly assess their opportunities in science and engineering. "If we can catch these kids when they are ten or twelve and show them the excitement that goes with space exploration and leading edge science, maybe that will help us gain back world leadership in creative sciences once again. It's hell when the only growth field in education these days is lawyers!" I pondered whether he knew Rick Brown.

Several million dollars went into a pot, an administrator was hired, Jack Anderson and others gave freely of their time on the administrative board and for at least 3 months my reports in CSD had satellite

dealers scurrying over the American countryside trying to sell subsidised satellite dishes to schools. I personally paid for one to go into St Andrews which briefly made Kevin a local hero because he, to the grinding of local TV cameras and school paper still cameras, did more than his share in assembling the dish antenna and connecting up the electronics for his 'Alma Mater'. Only one 'good thing' outlasted the all-to-brief Y.A.P.; NASA agreed to provide a regular TV coverage package, via satellite, ostensibly for Y.A.P. but ultimately for anyone and everyone who wanted live coverage of Cape Kennedy activities and launches. Within six months of the South Lawn ceremony, Pepsi's $250,000 and similar amounts from others had evaporated in 'administrative costs' and perhaps, maybe - if I was generous, 500 schools had dishes. Quite a shot from the 20,000 President Reagan asked for in the ceremony.

In truth, it had been politics as usual. President Reagan's advisors had pulled behind the project because it bought valuable TV time and press coverage when he needed it and once the 'sound bite' had run, well, 'moving on to the next week's episode of West Wing'. Every seven days, a new 'script' for the ex-sportscaster from Iowa.

However, while there covering the event I had been introduced to a lady who would have a profound if not long lasting influence on my life. Her name - Dr Carol Sue Rosin, self-described as a "research aid to Senator ... " - well, let's skip his name. Handing over her business card with a smile that seemed to be as wide as a football field, she extracted my 'promise' to call her, "the next time you are in town, and we'll do lunch."

Carol in 1984 was one of those woman that could float any story she thought capable of getting your attention and you would blindly, if a male, buy every word, comma and sly smile of it. From twenty feet away, men stopped dead in their tracks and simply stared. At ten feet an uncomfortable bulge appeared in your trousers. At 3 feet your palms sweat profusely. Any closer than that and you were hopelessly hooked. My pal Kenny Schaffer, the one who developed the Russian Molniya satellite tracking system for Columbia University and numerous others, is an apt example.

Kenny lives on 58th Street in New York (City) in a penthouse. He ranks in my top-three all-time brilliant people I have known and Kenny can talk the underpants off any female. He is not easily impressed.

"I am in shell shock, overwhelmed, and in love!" he loudly announced to me, panting and grabbing my arm at a satellite show in Las Vegas where Carol Rosin, Carol Graba and I toured the aisle ways. Ms Rosin had that effect - reducing bright, sane men to blithering

idiots. And she knew it. And worked it constantly. Women, my office manager Carol Graba the exception, crossed the street or Las Vegas aisle way so as to not be seen in the same eye shot as Dr Rosin; they'd lose, every time. It all amused Carol Graba whom everyone treated like a sister rather than a potential lover. But I am ahead of my story.

It happened that late in January I was indeed in Washington and given a choice of dropping in unannounced on Rick Brown hoping he might buy me lunch, or calling the number on the (Dr) Rosin card, there was no question which I would do.

"Oh - it's you!" she began, possibly the way she greeted every meet-once total-stranger responding to her time bomb business card. "I'm just back - from Moscow and haven't even unpacked my bag yet. Lunch? Why, I'd like that. Say an hour at ..." naming a chic Washington insider's spot.

Carol Rosin was every man's dream. Extremely bright, with extraordinary connections to everyone you thought you would like to meet, and, at least 'under makeup', one of the most striking, stunning women on the planet. Our luncheon date was one of those 'dream it - it will never happen' encounters.

"Back from Moscow?" asked I.

"Yes, and exhausted. I went there at Senator (name deleted) request to interview (another name deleted; a Russian you would instantly recognise) about Russia's true intent to back off of nuclear warhead delivery equipment." All very casual over a quiche lunch in a $50 minimum Washington street side cafe. Hey - doesn't everyone in Washington have lunches like this?

As the lunch matured, her exhausted state was more evident. "How about a week on a Caribbean beach with no telephones and nobody bugging you about anything," I heard myself saying. Silly me.

"Tell me more." I did. In ten minutes she decided Provo was a great idea and I was on the telephone making reservations for the two of us; Washington to Miami, then to Provo. I would discover that walking through a public place such as Washington's National Airport, with Carol Rosin holding onto my arm or hand, was akin to being accorded Robert Redford passes to the world. Crowds melted, lines disappeared before us. Anyone 'that striking', most assumed, 'had to be some sort of movie star' and with her by my side we always ended up at the front of a line; any line, any where. It of course went to my head, and she was so good at playing this part that it became a game to see how long it took to bust a crowd. Any crowd. Seconds, not minutes.

Carol Rosin was as much an enigma as Rick Brown closet advisor

James Rothbarth. Stunning in looks, brilliant in conversation, knowledgeable about anything and everything, she was in fact a plain woman with small physical attributes and almost no sexual drive - except of course when it might buy her information otherwise denied. My tried and true loyal Provo house keeper, Haitian Loonie, looked askance when we walked into my Grace Bay kitchen door. Loonie had never seen a 'movie star' up close before and Carol was 'obviously' one of those select people. That was when we arrived. The next morning Carol, sans makeup, her push up bra, and Fifth Avenue New York clothing, looked like almost anyone else. Loonie, I suspected, thought I had switched 'partners' during the night. In fact, Carol was about as interested in having a 'sexual encounter' with me as she was in meeting Rick Brown (about whom she had more insider information from her friend, Senator - blank, than even I knew).

We were on the Miami to Provo air plane when she confided to me, "Ted (Turner) has offered me $1,000,000 to produce a son for him." From no previous conversation about Turner, that is a heart stopper. I knew about Turner's 'dissatisfaction' with his then-present family and then-current wife Jane-number-one but to have Carol telling me that he had offered her big bucks for not just a f..., but a son, was a conversation stopper. I took it all on board.

Two incidents pinpoint the impact of Carol's visit to Provo.

We'd been on Provo's beach one day when I suggested we walk down to my nemesis, Club Med; 15 minutes of soft sand away. Club Med had rearranged my life on Provo as nothing else ever started there. I'd told her about this intrusion on my life style and naturally she wanted to see it for herself.

A high percentage of Club Med visitors walked down the Beach towards my home, and beyond, half or fully naked. It went with the territory at the time. Carol discarded her top (which was in itself a disappointment to the male hormones in me; without her custom bra, she was quite sub-ordinary) for the visit and in fact left herself topless even around the house for the balance of her visit (much to the disgust of my Haitian maid, Loonie). Hand in hand we arrived at Club Med where I spotted Bonnie Ericcson, Provo's almost geriatric resident doctor lounging in a beach chair with an alcoholic drink. We joined her.

"There," pointing at a male GO (gentile organiser), "goes the last one." We, of course, wondered "last what?"

"Of their 200 person staff, he is the only one I am not presently treating for a communicable disease. He's still clean!"

You can imagine the conversation that followed. Dr Bonnie's contract with Club Med included generous hypodermic shots to prevent (well, control is more accurate) the spread of sexual transmitted diseases and she therefore knew when someone stood out as 'clean'. We took bets on how long the male Adonis flexing his muscles on the volley-ball court before us would stay as he was. Bonnie would later remark to me, aware that Susan and I were 'split', that when she saw Carol and I walking hand in hand along the sandy beach, that she simply thought, 'two people in love'. She of course was wrong, a growing friendship - yes, nothing more.

Tiring of fix-it-ourselves freezer food, Carol and I went out one night to the trendy Third Turtle Inn. You might recall that eating here was the epitome of Provo society. Carol broke out her push up bra, a summer frock that sprung off the front cover of Vogue, and applied layers of makeup for the night out. I dressed in my usual island slovenly image with open sandals and a Haitian shirt. She looked her 'movie star' best and I my island-cad worst. Our table for two, candlelit, was in a corner.

One of the most island-notorious individuals, Buzzy Marcos from Philadelphia and his trendy wife Ronnie, were also dining at 3T that evening. Buzzy was the perhaps unwanted son of a Philadelphia society scion's family, an embarrassment to his family and friends. He wore 'lecherous' as an arm band, much like Murray Moss from early-CADCO days. They were cut from the same mould. He spotted Carol and I dining and as hundreds and thousands before had experienced, could not control his emotions.

"Hi you beautiful thing," he began. "I'm from Philadelphia - I am very very rich and I like sex."

As he had left wife Ronnie and walked towards us, I had given Carol seconds of warning.

"You are an ugly, disgusting excuse for a man and ..." picking up the steak knife awaiting delivery of her main course, "...if you will bend your obnoxious body a few inches closer to me, I will delight in castrating you right here in front of the entire restaurant."

In the decade that I knew Buzzy, I had never previously (and would never again) witnessed total speech loss. He turned with a sheepish look of shock on his face and departed without another word. The incident made my night and Carol simply smiled. "I've been approached by men all my life. It is simply a matter of working where they are vulnerable and attacking that point." A sharp knife to Buzzy's 'special purpose tool' was certainly his most self-protected spot.

Of course Buzzy, Ronnie and the balance of the restaurant wasted no time describing (and misdescribing) my dinner 'date' to not only the entire Provo world but in short order word of Carol's visit reached separated wife Susan in Florida. I never knew exactly how Carol was detailed, but even a ten percent accurate reflection would have been sufficient to attract Susan's attention. I would underline the Provo visit with a photo appearing in CSD April 1985 of Dr Carol Rosin standing in our satellite antenna 'farm' yard on Provo; wife Susan could hardly miss that photo (which, with Dr Carol's push-up bra prominently in focus, made her look very threatening - to Susan - indeed!).

In fairness to Dr Carol Sue Rosin, while she was a physical knockout and a mental giant, her credentials when she came to Provo were in that upper one-tenth of one percent of woman (or man) kind. For example, prior to becoming a famous person who appeared with some regularity on CNN, ABC, CBS and NBC to debate the differences between President Reagan's military exploitation of space (his plan to assemble a first strike capability there as a shield against Russian aggression), and, 'the peaceful development of space', (which she favored), Dr Rosin had also been the number-one assistant and in his declining years 'official spokesperson' to the late German-born American rocket expert Dr Wernher von Braun. In that position, she was responsible for the early day connection between the American pioneer telecasting satellite ATS-6 and the world. ATS-6 was the satellite first launched for TV service, which Steve Richey and I cut our teeth on back in the 1974-75 era from Oklahoma. And she had co-authored a book, 'Space Careers,' which was the primary reference work for students and post graduates interested in becoming a part of the 'space race'. Dr Carol would, in March 1985, accompany me to visit with another 'space pioneer'- Ohio resident Dr John Kraus who literally 'invented' the then-new field of Radio Astronomy (surveying the cosmos for radio emissions rather than visible light rays). Dr Kraus agreed to become a part of my CSD 'editorial team' during that visit, which would unfortunately be superseded by my own later-1985 decision to 'get the hell out of Dodge' (city).

Carol's visit to Provo produced an outline for a book; and, as she had been 'published' previously, this was not a new experience for her. Her mind was as outrageous as her carefully constructed and made-up body when she wanted to be stunning. Her offhanded remark about Ted Turner's offer to 'reward her' with a large sum of money, if she produced a son for him, got my own imagination running. I sat up one full night creating a draft outline for a fictitous novel involving a

Turner-like-person, a Carol-like-person, and a 1985 version of the 'Space Station', revolving overhead with a son sired by the Turner-like person on board. Working and reworking the outline kept us both 'lightly' occupied for the balance of her one week visit and it did not take me long to grow totally comfortable with her naked-but-for-panties attire. Loonie, on the other hand, found it difficult to serve fried eggs to a white lady sitting in her Cosmo underwear at our kitchen counter. When Loonie would pass this on to Susan, one can but imagine her reaction. I would find out when I next saw Susan, in Las Vegas.

Carol's visit evolved into a brain storming session. She knew almost nothing about TVRO when she arrived, could pass any test given for detailed knowledge and comprehension when we parted. Setting aside the prospectus for a novel involving Turner and sex in space, two important 'to-be-pursued' concepts emerged. I was intrigued by the reaction if she went to the shortly-ahead Las Vegas trade show as a part of the CSD team. Her extraordinary mind, thought I, would challenge the best in the industry in one-on-one conversations. Dressed to the nines, as was her special skill, armed with a reporter's notebook and followed by a TV camera crew from industry TV program Boresight, I could but imagine (with a huge smile on my face) the reaction if she 'went after' a number of male-people who had run in the opposite direction when I tried the same 'interview' approach. My suspicion was that when they saw her heading their way, even if they had been forewarned what was happening, we'd have the 'twenty foot and closing' reaction of any male approached. Shaun Kenny at Boresight somersaulted at the opportunity to have Carol asking questions and getting reactions on tape to some of the industry's most pressing questions when the target of the interview couldn't squirm or worm his way out of the encounter. 'My Carol' (Graba) reserved her own opinion of the plan, I think believing the Cooper-Rosin relationship was platonic but still not totally convinced Carol Rosin might not be getting a tad too close to her boss.

Plan two was much more ambitious and will perhaps be denied by those not on hand as it unfurled. It began like this, in the middle of a discussion involving Turner and child in space.

"Ted's still not sure how to get his CNN service into Europe," I began.

"I've discussed it with him; he's uncomfortable that Americans reading news headlines will go down in Brussels or Rome," she responded.

"I think he's blinded by the trees here and trying to work out a coverage plan based upon big numbers of viewers may not be the best

way to launch CNN International."

"You have an alternative concept?" she asked.

I did. Two in fact. First, rather than jumping in trying to get co-operation from the various European state-run broadcasters, who saw in Turner the embodiment of everything they disliked about American electronic media, I believed he should 'narrow cast' the service initially, just to a select number of locations where Americans congregated; in effect, 'hometown CNN' that went with you on your overseas travels.

"Hotels, resorts," suggested I to Carol. "And dangle a carrot in front of the hotel chains by offering to promote over the air that 'Sheraton Naples' is one of the locations where (American) travellers will find CNN while travelling."

"And when the locals work out the service is not threatening, and on occasion might even be important and useful, then they'd be less against having it on local cable or even broadcast TV?" Exactly. It was my 'enclave development' plan for CNN.

We discussed it for several hours, looking for just the right 'hook' to get Turner's attention. He was famous (or perhaps infamous) for making snap decisions when he really liked a proposal - one of the all time classic, "Hey. Great idea! Run with it!!" guys.

I suggested she and I drop in to see the man in Atlanta. Carol thought not. "I'm conversant with every aspect of the proposal. Having you along would make the presentation more difficult. This one, I do alone."

Right on. How many people did I know who might knock on Turner's door and announce, "I'm here to collect my million bucks."

I would see Carol frequently through the first half of 1985, even spend a night in her Maryland home which she shared with a hell of a nice chap who's role in her life remained too elusive to quantify. They were a 'couple', that was made clear to me, but how he had arrived at an arrangement that allowed her to flit around the world leaving various forms of mayhem in her wake never quite surfaced. On my 'side', wife Susan would appear in Las Vegas under what would generously be described as 'strained circumstances', with only scant advance notice to me and a warning from Carol G that I should anticipate an 'ugly situation'. It was, briefly, until Carol R decided she should step in to quiet it all down.

"Yes, I am 'the other woman,'" she announced to Susan. "I am madly in love with your husband, I am pregnant, and we plan to run off to Nepal immediately after this show!" And then she smiled, her face covering wicked all-teeth Hedy Lamarr imitation, and they both

laughed until tears ran down their faces. Susan's mascara ran, Carol R's did not. Quality counts.

Carol's visit with Ted T went almost as planned, as we shall see. By the month of May I was spending as much time in Atlanta, with Carol and a growing team of 'advisors', as I was on Provo or Fort Lauderdale. Furthermore, I could not resist sneaking a shot of Carol onto CSD's front cover for May 1985. Boresight TV Producer Shaun Kenny, his own kind of mayhem creator, was featured and there smartly tucked into the back corner of the color photo was Carol sitting on a stool on Shaun's show TV set staring so directly at my camera that even today I am haunted by the image; a reminder to those she entrapped at Las Vegas that they had been bitten by an Egyptian snake.

Message to M-A Com: "Gotcha!"

M-A Com, true to a November CSD/2 overview of the status of scrambling hardware, did not ship 10,000 promised VC2C cable level decoders to their affiliates by December 31. Nor 1,000. 100? Perhaps. With VC2 delivery finally happening, one of the burning challenges I faced was untangling the deliberate subterfuge created by the Massachusetts high tech firm when they pretended to be visiting receiver manufacturers to 'test' the ability of various receivers to work with Videocipher. With M-A Com CEO Jim Bunker's admission in CSD/2 his firm had in fact hand carried a one-off totally unique decoder to the Avcom, Dexcel, Luxor, SatTecs of the world and further knew before they walked into any of those more than 70 doors the visited firm's receivers would not work with their customised Videocipher format, what he left unanswered was the original root question: "Will a REAL videocipher work with the SAME receivers?"

Through January VC2C decoders remained as scarce as a D-cup bra in Carol Rosin's overnight bag. Fortunately, in Fort Lauderdale, a very savvy SPACE activist dealer was just down the street from our office; Frank Abruzzo. Working for Frank was a young techno-nerd named Alli Lake who happened to have a magnetic mind which recalled with 100% accuracy anything he had ever read or been told. Some people have 'photographic' memory - Alli was a level beyond that. I had been using Alli's freelance service to keep some of our Fort Lauderdale office equipment running for a year or so prior to the event about to be described, and shortly he would move to Provo so I could get maximum benefit from his very unique skills.

What I needed, urgently, was a VC2C descrambler. First I went in

through the front door and asked my 'friends' at M-A Com to ship me one. Of course they said no, using as an excuse that the descramblers 'actually belong to' HBO and I should ask HBO for one. As much as HBO trusted me, they were not quite that crazy. My plan was very simple - at Frank's shop with a VC2C in hand, we would marry Alli, a bench filled with test equipment, and a carefully selected handful of industry experts into a non-stop testing program. Between Frank and I, we had perhaps 25 different brand/models of satellite receivers. Fortifying Alli with coke and plying his vegetarian eating habits, we'd start the first honest testing (a real Videocipher and a series of real receivers) the minute the descrambler arrived.

My second fall back position after the anticipated no ("NO!!!" actually) was subterfuge. With VC2Cs in short supply, HBO's original plan to provide one plus a spare for each cable firm carrying their service was not happening. If they had 100 to ship at M-A Com, better to send them to 100 different cable firms than 50 at two each. Within the cable industry, thanks to M-A Com's tardiness, HBO had their own delivery 'credibility' problem.

But it happened that in Thief River Falls, Minnesota was HBO's third-turn-on satellite connected cable TV affiliate; as well as Doug Dehnert of Maspro USA; head quartered there. And Dehnert, like any good Cooper-groupie, was 'on the case'. When it became clear that HBO would indeed scramble, Dehnert had arranged through the Thief River Falls cable system for a 'spare' VC2C which would ultimately go to Johnston island - where HBO was being rebroadcast by my on-the-spot designed retransmission system. The arrangement, on HBO paperwork, was that the Johnston Island installation by Dehnert + Cooper, was a 'small adjacent-to-Thief River Falls (Minnesota)' community served by the Minnesota cable system. What nobody had worked out was that 'adjacent' was 5,000 miles distant in the Pacific.

When the 'adjacent community' VC2C arrived in Thief River Falls by air courier, it was promptly reshipped to Fort Lauderdale where Frank Abbruzzo, myself and a handful of others waited with baited breath and pre-warmed test equipment. Our goal, with Alli Lake anxious to oblige, was to connect it to as many home-style totally 'stock' receivers as possible for the 48 (extended to 72) hours we had the VC2C in our possession. It would be a non-stop marathon.

I published the results in CSD for April 1 and CSD/2 for April 15th. And the tests we ran totally destroyed anything and everything M-A Com had previously claimed about the 'special circumstances' which the VC2C required. In a single sentence, M-A Com had been

telling anyone and everyone that unless 'standard home style receivers' were significantly modified to the special requirements of Videocipher, "they would not function with the HBO scrambling system". It was an utter and complete fabrication of the truth. We found every single receiver, even the cheap ones with very poor video characteristics, worked with Videocipher.

M-A Com was terribly embarrassed by this published information, having been 'caught out' in an internal marketing plan which had been created to propel their own H1 and T1 models to the number-one sales position. Within the TVRO industry, the CSD revelations were akin to discovering proof that George W. Bush and Tony Blair had 'invented' the WMD (weapons of mass destruction) 'story' to justify their attack on Iraq in 2003. If the mid to late 1984 CSD revelations concerning M-A Com's handling of the HBO scrambling had 'looked bad' for the Boston suburban firm, the new facts published in March-April 1985 made them the 'industry bad boys'.

It happened that the April CSD would be mailed just prior to the nine-ring circus created by dovetailing the SPACE and Rick Schneringer shows. So in Las Vegas, in addition to Dr Carol Sue walking the aisle ways followed by a string of tidal waves, the home dish industry now had the proof it took me more than 12 months to assemble that the HBO scrambling system, developed by M-A Com, was being totally misrepresented to the world. Our world.

Angry is far too mild a word. Those first-timers who had never attended a show before found the M-A Com 'super exhibit booth' arguments quite logical. "Buy our receivers and you and your customers will be guaranteed access to HBO (and others) as they scramble. Buy someone else's equipment and ... well, you may be sued by consumers when the equipment you have sold doesn't work with the HBO scrambled service."

To some, the situation was as clear as the then-still-raging battle between VHS and Betamax. But to those who had been around long enough to read chapter and verse in CSD over the past 12 months, building up to the blockbuster April issue revelations, it was much more than a battle of 'tape standards'. As indeed, it was.

I didn't expect to be greeted by open arms by the crew at Microwave Associates but was not totally prepared for those they would enlist to carry 'their side' of the case to my ears. One of these was John Sie, at the top of the management rung for movie network Showtime. John and I went back ten years or more; back to when he was an engineer for Jerrold Electronics under (soon to be) Governor of Pennsylvania,

Milton Shapp. We talked the same techno-freak language and he dragged me to a very public spot on a stairway leading into the satellite show exhibit hall where he motioned I should sit down while the coming and going crowds flowed around us.

"You are going to kill this and the industry," he began. "You are making valid technical points - I agree - but in the end who gives a damn? So they misrepresented their descrambler's requirements. Who cares? Nobody will even remember this a year from now. And in that year, the puddle you are stirring will derail the orderly amalgamation of home dishes into the larger world of satellite delivery of home entertainment. I counsel you to stop it. Now!"

Shades of Scientific Atlanta's CEO Syd Topol who in 1979 had all but ordered me to "quiet down the publicity for home dishes (because) you are stirring up the wrong people."

It happened that I was wearing a wireless mike when Sie had tugged on my arm motioning me to follow him, and 'clumsy' as I was, it was running while we debated the issue. It also happened that Boresight's Shaun Kenny had seen me being yanked out of circulation, grabbed a shoulder camera from one of his staff and standing just far enough away not to be obvious, was recording everything. The ten minute discussion laid it all out - Sie 'admitted' (he thought only to me) the 'conspiracy' between the programmers (led by HBO and supported by M-A Com) had only one exit line. To either put home TVRO out of business, or, if we as an industry capitulated prior to the 'final battle', absorb those of us who survived into the cable TV 'camp'.

Within an hour Shaun and I had played (and replayed) the all-revealing tape to SPACE's Brown, and a handful of his most trusted insider supporters. On a scale of what Brown most needed to field an antitrust case against the cable programmer industry, the tape was a 'ten'.

"I want that tape!" he began. Sure he did. And pigs might fly. But not so fast.

Shaun and I had first made a dup - before we told anyone it existed. And locked the original away in a most inconspicuous place; Dr Carol Rosin's never far away makeup case, over her protests ("Don't you dare go in there! Hey - stop taking those things out!"). Then we made an agreement. The original stayed with us and if the dup was stolen, well, we had the original. We knew Brown would do almost anything to have it and jointly decided that we wanted a few things from him first. Such as complete access for the Boresight crew to SPACE Board meetings. No more secret meetings, no more behind-closed-door sessions. Next, Shaun wanted access to Brown himself, on tape, for his TV show.

Up to this point the Boresight crew had been treated mostly as Lepers by the SPACE counsel which of course rankled Shaun greatly to the point where he reacted by looking for every dirty thing he could find out about Brown and SPACE. With agreement that Boresight could be accorded full press credentials, there was an understanding, a temporary one as it would turn out, to 'bury the hatchet'.

"We are all in this together and we all want the same end result," Shaun kept mouthing to Brown. Well, it sounded good when he said it, if in fact idealistic. Brown of course was driven by earning money - for Brown - and if that happened to also benefit the home dish industry, so much the better for his reputation.

In the end I had to 'sweeten' the pot to make it all work. When the M-A Com Videocipher had turned up in Fort Lauderdale, and was rushed to Frank Abruzzo's shop for Alli Lake to dissect and test, I was on hand with hours of blank videotape and a camcorder. As Alli had tested receiver after receiver, every second of his work had been recorded. Live and in brilliant color. Much of that taped content was an indictment of the level of M-A Com's subterfuge in trying to fool the home industry into believing they and only they had the technology to make the Videocipher system work with a satellite receiver. Only a techno-nerd, or perhaps a judge in a court, would find the content 'fascinating'. To liven up our joint CSD + Boresight booth at the Las Vegas show, I had dubbed a few hours of the tapes and we set up a viewing corner where attendees could sit down, drink a cold beer, and absorb just how the tests were run and watch with their own eyes as Alli Lake revealed how and where the Videocipher could be connected into a series of receivers from RL Drake and others - and work with Videocipher. As the only 'authentic' Videocipher capable receivers in Las Vegas were padlocked inside of the M-A Com booth, our second-generation videotapes gave an entirely different perspective to the claims still radiating from the guys and gals out of Boston. Brown, for SPACE, was 'gifted' with a set of these dissection tapes.

Shaun Kenny left Las Vegas with ten hours of one-on-one Dr Rosin inspired 3/4" video tape and an industry visibility that had elevated several thousand percent. Prior to Las Vegas, he was mostly known for his irreverent 'outsider attacks' on SPACE and that handful of suppliers such as the Dushane bothers who refused to stand behind their products in the field. The Boresight following was loyal but not sizeable. Never again, for as long as Boresight would exist. Prior to Las Vegas I had also formed a new alliance with a California consumer magazine publisher named Jim Miller. His firm published second-level enthusiast

magazines for car racing buffs and others, and had something quite important going for himself - news-stand distribution so that any given issue of his various magazines often sold nation-wide in the 100,000 to 200,000 per copy region. 'Home Satellite TV Magazine' was a new title hoping to cash in on the flurry of public interest to own a dish system.

Between the three of us (Kenny, Miller and myself) we had a tri-sided package of media reaching essentially everyone of interest to the young industry. Miller teamed with Dr Carol Sue in several of the Boresight pieces Shaun put to tape in Vegas and took out advertising for his publication on the TV show. To support Miller I rounded up material for his semi-monthly publication, another 'writing assignment' I did not need but which I instinctively knew had to be done anyhow.

"Can you get us into HSTM?" asked a number of influential manufacturers. They were not asking about 'advertising space' - could I arrange editorial space for them was the real query. My usual response was, "Only if you also do TV advertising on Boresight," which of course helped Shaun break down the doors of firms who had treated him like an outcast because of Boresight's original 'SPACE-is-no-good' editorial thrust.

Behind the scenes a number of things were happening which would reshape my life from September 1985 onward. First and foremost was a cryptic telephone message from Alli Lake.

"I have decrypted the video on Videocipher but have come to the conclusion that attempting to reverse engineer the encrypted digital audio will be a foolish waste of time. I suggest we look not at unravelling it but rather at what it does once it is decrypted."

Translation? Videocipher was not immune to hacking; a revelation that would drive the industry from 1985 onwards.

"I need some engineering support here - a concerted effort by a group of people each bringing special skills to the challenge," he suggested.

Armed with this Alli analysis, I decided the time had come to pay a new visit to my 'former' friends at M-A Com; into the lion's den as it were. There was one avenue remaining, outside of Rick Brown bringing a successful antitrust suit against the programmers, to postpone the inevitable transition to the cable plan outlined to me by John Sie. If M-A Com had been as careless in designing the encryption system as they had in bringing it to market, and it was indeed hackable, knowledge that it was not secure might have an impact on the cable

programmers HBO was lining up to rush into encryption.

Below this surface tension, I had two semiconscious plans. First, to create our own programming as an industry. The concept dated back to 1980 and some, including Intersat's David McClaskey, had spent time and money exploring just how the finances might work. Anyone with money could buy movies and sporting events for delivery to home dishes. And as long as new system sales continued to pop along at 50,000 plus per month, logic suggested there should be a formula involving new viewers coming on line and suppliers earmarking a few dollars for every item sold each month to a 'programming fund' to pay the overhead. Unfortunately this logic was mostly wrong, as we would work out. In an industry where almost nobody had long term plans, and OEMs such as Randall Odom lived only for the moment, getting suppliers to earmark even $5 out of their selling price to a programming fund was an uphill battle. The attitude of all but a handful was fatalistic, reflected in Odom's now famous, "I came into this industry with an outhouse for a bathroom and if it all collapses one day, in between the start and finish it has been a hell of a rush."

To change attitudes about creating our own programming would, I realised, require a full time dedicated effort built around personal visits with perhaps 100 key suppliers. I had no hope of pulling this off as long as CSD and CSD/2 had to be cranked out every two weeks. Maybe, just perhaps, I needed a rest from the publications. One possibility would be to simply close them down, 'going out on a high' as some were suggesting, privately. But the magazines had value, a simple function of advertising plus subscription income less the annual costs associated with production. If I proceeded down this path, head long into the program production aspect of satellite TV, someone out there had to pony up a reasonable amount of dollars to buy me out and take over. But Coop's Satellite Digest, without 'Coop'? Obviously not the same, so any serious buyer would demand some continued Coop presence for at least a transition year as a minimum.

And then there was the tension involving wife Susan and two teenage children. For 18 years, Susan and I had been a couple with similar aspirations. Life with me was never easy and over the years she learned to adjust to the latest 'grand plan' that seemed to surface anew each week or month. We had built cable systems in California together and then abandoned the USA in 1968 for a year to live on St Croix in the US Virgin Islands where I introduced the first two-way business radio systems and developed circuits for what would ultimately become the CADCO 'All American Sports Amplifier'. Pregnant with son Kevin, we

had returned to the USA heading for California with a one week stopover in Oklahoma City to visit with my buddy Tommy Hoshall, where ultimately we stayed for 11 years until our move to the Turks & Caicos Islands on the leading cusp of the satellite revolution.

Through it all, Susan's health was a constant challenge. A young woman still in her 20s when she lost a hip to an early-day replacement, followed by a difficult pregnancy with daughter Tasha and then five years of mysterious, never diagnosed as-to-cause huge blisters that would appear without warning on the lower legs forcing her to bed for weeks at a time. The move to Provo had come during a lull in health problems but by 1984 we were back to medical square one and she was spending up to 50% of her time as a house guest of the McClaskeys in St Louis to be attended by a doctor who was mostly convinced that Susan's problems were self-inflicted. As Dr Surtin repeatedly told me, "She is willing herself to be ill."

If that was partially or totally true, I had to accept at least some of the responsibility for whatever it was triggering her condition. The longest good-health stretch had been the five years between our decision to move to Provo and 1984. Susan dearly loved Provo, with all of its primitives, and the opportunity to live inside property out of reach from anyone we wished to dismiss by simply locking the 500 pound gates at the roadside. But Club Med's opening had turned that around in a 24 hour period that began with the arrival of the first New York to Provo charter carrying 300 holidaymakers who on arrival all acted like they had left Hoboken with the singular purpose of desecrating 'our' beach.

Club Med was an initiative that began with a British land developer named Richard Syme. Moving in a strata of society where most of his friends had 'titles' (Sir this, Lady that), he had dabbled in minor 3 to 5 acre developments on Provo more as an excuse to hang out on this idyllic isle than because of any monetary need. Provo's early white settlers were typically running from the law or hiding from an irate family. Some significant family 'fortunes' were represented by a group much like Buzzy Marcus; they were there, either permanently or for up to six months each 'winter', because on Provo they could 'hide' from family peer pressure and do wild and crazy stuff which back home would land them either in jail, or, on the front page of the local broadsheet. It made for an amusing social life; native blacks who watched closely how these ultra-rich people acted in their presence, and then marrying these actions with the 'outside world' we brought them on television, the natives had created their own mimicking life styles.

Club Med, France's answer to post-Hitler-ghetto adjustments for Europeans who had suffered the ravages of war and ethnic 'cleansing', was to become an instant financial success on Provo. The first major tourism facility in the country, the French management created a scenario which fairly jumped out of tourist agency wall posters into people's minds. Fantasy number one - the brochures claimed "Club Med Turkoise is on a 7 mile beach with no other occupants, on an island with no telephones, in a country you won't find on any map." The not so subliminal message that followed was straight forward: 'Take your clothes off, and spend a week in the sun doing anything and everything you ever dreamed of doing on a remote Caribbean Island.'

The text further described Turkoise as a 'singles resort' and pointedly suggested families should stay away. And, 'Come alone - you won't be alone - long!'

Any way you spelled it, Club Med was selling sex - free will unrestricted sex. Which was of course why Provo's lone full-time doctor, Bonnie Ericcson, spent most of her days lounging in a beach chair under the imported Turkoise palm trees with a shoulder strap pouch carrying penicillin and stronger concoctions. Bonnie, to me, over an iced tea:

"Some weeks I go through a gross of injection needles."

One of her most entertaining stories told of being approached on the run by two 50ish ladies from New Jersey who arrived at her pool side lounge chair mostly out of breath.

"Quick - we both need a shot. Now!" one stammered, gasping for oxygen.

"Jean-Jacque just 'serviced' us and then he cautioned we get a shot quickly because he has the clap!"

That I disliked Club Med, intensely, was never in question. First of all, it was run by French people who believed they were God's gift to the universe. Second of all, they had invaded 'my beach' and once there had unleashed as many as 400 brand new imports every Saturday onto 'my unlisted island'. In the first 30 minutes after checking into their bedrooms, the GM (Gentile Manager or resort boss) took the newbies into a party hall, and plying them with house liquor, read a set of ten 'rules' (not to be confused with Commandments). He began with the total lie that, "Club Med is the only occupant of this island and you are free to go where you wish and do as you wish anyplace while here." It was an open invitation for truancy. Or debauchery. And worse.

Rule number two advised them to shed their clothing, which some

had already done of course. Rules three through nine dealt with when they could eat, when they could drink (24 hours a day - open bar), use of the two person sail boats (often occupied by three people doing most unusual things for a sailboat) and other mechanical options. Number ten was Dr Bonnie's favorite.

"And if you feel you may have contracted some sort of illness, we have a resident doctor here who will put you right in no time." A very large container of prophylactics was pointedly identified and each morning would be refilled to overflowing. Special instructions in several languages adjacent to the 'rubber box' included step by step instructions for disposing of 'spent contraceptive equipment', instructions few if any bothered to follow.

If it all seemed too good to be true, few noticed. I was one of those few who did notice. To great excitement, and the grinding of WIV television cameras, the first Saturday plane load had arrived and amidst total chaos around 300 first-timers at Turkoise had been dumped onto our island. Club Med's promotional tools had offered 'First time-First week-Specials' to established clients who had achieved a level of patronage suggesting every one of the 300 had been to many Club Meds elsewhere in the world previously. These were the 'veterans', the folks who had been specially invited to 'break in' a brand new facility. They knew the ropes in advance, threw off their clothing with prompt abandon, and tucked plastic wrapped prophylactics behind their ears or hung them from clips attached to gold chains around their necks. A first-evening contest awarded prizes to those who had the 'most unusual' methods of carrying with them the sheath appliances on an otherwise unadorned body. No fair guessing where some women 'hid' their stash.

As the beach was ostensibly 'the property of the Queen', the temptation for locals (black and white) to wander down the sand to stand just outside the Club Med area and witness the debauchery inside was overpowering. I resisted, however, although virtually everyone on the island knew the 'opening evening' was a once in a lifetime opportunity to watch civilisation decay in real time.

When the sun rose on Sunday, only hours after the first plane load arrived, it took only a few minutes for me to reach a decision. Our two acre property, the nearest Club Med neighbor, would have to be fenced; turned into a self-enclosed, secure 'compound'. Upon awaking, I found Club Medders all over our property, standing in our doorways, using our beach side hammock for two-three and four person 'romps', and walking in through any door we left unlocked. It came down to

Rule Number One: "We are the only thing here - it is ALL Club Med."

A hasty visit by me to encounter the GM was a disappointment. In a TV interview the prior week he spoke impeccable English. Now, confronted by my loud and borderline violent ranting that included reciting back to him his own Rule Number One (provided to me by every Club Medder I attempted to drive off of my property), he suddenly forgot how to speak my native tongue. His assistant, speaking broken English, dismissed me with the suggestion I write a letter of complaint to 'the organisation' - and as I turned to leave, the GM spoke two words in English, with reference to the letter I had been told to write. He said, "In French".

War. OK, they had declared war on me. They had 'fresh troops' each Saturday. I had television and radio stations. And the home phone number of everyone from the Governor on down the line who could correct this situation. Initially I was outnumbered. As the only residence 'on the beach', it was my house alone that was being turned into a tactless depository for spent rubbers.

Step one; defensive. On the telephone to Miami ordering sufficent lumber, nails, steel and sacks of cement to build a six foot heavy duty fence around the entire two acres with a chain link segment in front so as to not destroy our Grace Bay over water view less than 50 feet in front of the 'compound'. Even if 'the view' was now often marred by naked people humping on the sand dunes.

Step two: Defensive again. On the telephone to Miami to locate and arrange for two Doberman Pincher dogs who, when the compound fence was completed, would be given free rein to patrol our property. I had no illusions about the fencing stopping all of the intruders but those few who slide their bare ass over the six foot wall would now be confronted by a pair of very angry blood thirsty dogs. And signs. Lots of signs, in English and French warning everyone passing by our fenced compound that entry was at their own risk including the consequences of being caught inside with their breasts or penis dangling.

Step three: Offensive. The Governor, my friend, but caught on a Ferris wheel from which there was no escape, kept reminding me that "the financial success of Club Med is paramount to the development of Provo and our islands." True enough. But at what price? The Attorney General, one in a long line of legal malcontents sent to TCI because he was no good at what he did at home:

"They have broken no laws here. Perhaps they err when describing their status to the new arrivals, but that is hardly something with which you can build a legal case." His advice was simple enough. "Build your

fence, get your dogs; stiff upper lip. It will all work out." Maintaining a 'stiff upper lip', a British tradition, was no competition to the stiff erections wandering down the beach hourly.

Step four: Serious offensive. To staff Club Med required several hundred GO (gentile organisers - typically aged 18 to 25, from all over the world) to adult-sit the neophytes from suburban New Jersey and Long Island. And, a locally arranged work force. Folks who cleaned up the messes and swept up the spent condoms, prepared the food and maintained the ten acres of lawns, tennis and volleyball courts. And the sewage plant.

Turks & Caicos Islanders quickly worked out that the wages paid (GO's received room and board and US$400 a month; the manager of the full facility was paid a not very generous $1,000 a month) was only good if they had some extra perks. Getting slipped $25 for a romp with a lady from Hoboken was one form of perk. Helping themselves to somebody's carelessly laid down Rolex was a better perk.

Haitians, on the other hand, thought $30 a week to work 12 hours a day, six days a week, sweeping up grass clippings and used condoms was pretty OK. Especially when they were also provided plywood shacks at the back of the property to live in, and the abundant kitchen always seemed to have fifty pounds of cooked rice or 10 pounds of uneaten chicken legs left over for their meals.

Then there was the sewage farm. Four hundred tourists, 200 GOs, another 200 local staff created around a ton of disposable gooey brown and yellow stuff each day. Naturally it had to go someplace since dumping it into the ground was a short cut to environmental death and sending it out to sea (which believe it or not they actually attempted!) was about as dumb as even the French could be. So they built a sewage waste disposal plant at the back of the property, after somebody in Paris pointed out that a ton of effluent each day would make an incredibly useful resource of raw nutrient for the acres of lawns and imported trees and bushes.

In a moment of inspiration, I grabbed a Panasonic 3/4" videotape package, stash of batteries and headed into their back lot where by poking around I located the sewage plant which until that time had been mostly off-limits. And there I found a lonely Haitian fellow who had a simplistic job. Five ponds, each taking the mixture from the raw input pond number one through a series of steps to number five where, the French designer claimed, "You could bend down and drink the water". Not in my lifetime of course but then the French eat and drink things I would not even dip my toes into. The Haitian's job was to

make sure the ponds did not overflow, that the pumps ran as they were supposed to run, and the 'sweepers' (large, circular discs that turned or churned the hopefully decaying contents of the ponds) were running as designed. A lonely job, to be sure, a 'Robinson Crusoe in deep shit' so to speak.

I became his friend, and without asking anyone's permission shot an hour or so of tape of him doing his job. A day later I was back with a part-of-year visiting local; a chemical engineer from Wisconsin, who just happened to have with him a rudimentary set of measurement tools allowing him to check out the 'level of contamination' and the health danger in each of the five ponds. As he did these tests the 3/4" tape deck rolled. I have never been a fan of excrement swimming in a glass tumbler but in the bright sunlight this was some of the most exciting video I had ever shot; of extraordinary color and brilliance.

By end-of-line pond number five my visiting chemical engineer was shaking his head and muttering things like, "Those damned French - they couldn't design a shit house in a barnyard." Two days later he had a fully written, credential-referenced report. Bottom line? The system Club Med had built only reduced the contaminants by 55% at pond 5. They were dumping lethal crap - 'shit' is the correct word - onto their lawns and surrounds. Dr Bonnie would in the event of a disaster be faced with something akin to the Bubonic Plague. Armed with this evidence against Club Med, I pondered what to do next. Option one - hit the airwaves on WIV-TV with a one hour expose and let the 'chips' fall where they might. Option two - give the egocentric French management more of a courtesy than they had shown me and take the information first to them. I chose option two, being basically a good person who, while no slouch as a journalist, thought better than starting a stampede of irate reaction on 'my' island. Club Med management was, after all, the caretakers for the European investor owned facility and lacking a direct line to Paris, I started at the top level I could reach.

So in 30 minutes of quickly edited tape I put together the story - not ready for on-air use certainly, but coherent and factual. And hauled it with a monitor to the GM's office.

He sat through the first five minutes with a bemused smile on his face, which turned sour at the point where the chemical engineer presented his first findings. By minute 15 he was up pacing the floor but still eyeballs to the screen. By minute 25 he was screaming in French at his assistant who disappeared in a puff of energy to the outside world.

Having now recovered his ability to speak English, as the tape finished he turned to me and in a falsely calm voice asked, "So what do you intend to do with this diatribe?"

I think it was his use of the word 'diatribe' that angered me.

I quickly suggested it was not for TV airing, but rather to alert him to a public health problem he might not be conscious of. Vehement, instant denial.

"All of our tests, all of our experts have found this to be a totally safe effluent processing system. Your so-called expert is wrong. There is nothing dangerous about this at all!"

I of course expected this level of reaction and had thought about how to handle it. Just to be doubly sure of our findings, we had snuck into a back corner section of the Club Med property and sampled water coming out of a sprinkler head dousing plants surrounding the tennis court. I had that foray on a separate tape which I inserted into the machine; five additional minutes with the chemical engineer on camera giving his findings.

"This is blasphemy!" shouted the GM. At $1,000 a month I did not expect brilliance.

"OK - then the next step is to take these tapes to the Governor," I heard myself saying. "After that, perhaps on television here." And then to drive home my concerns, I added, "And then to my friends at CNN in Atlanta. Imagine how the American market might react to knowing that your facility is a test tube for Bubonic Plague!"

Now, for the first time, I had his attention.

"Give me two, no, five days to work this out. If your measurements are correct, we will tell you how we will fix this. Will you then agree to withhold release of this material?"

I agreed, suggesting however that from this moment on he correct his 'Rule Number One' statement to new arrivals, more correctly advising them that the *only* Club Med property was defined by the limits of the vegetation they had planted. He agreed, "as a temporary measure to show you my good faith." This would not yet make a suitable Woody Allen movie, but it was getting closer with each video frame.

Circumstances would intervene.

The next day I returned to the site for some additional close up video footage of the floating excrement in the ponds. I figured that sooner or later I would need it for something to air on TV. The GM had in the interim posted a guard at the entry to the sewage farm and it took $10 out of my pocket to get past the Haitian 'security' standing there.

It was the best (or worst as you will decide) $10 I had ever spent. Once inside, I was busy shooting close-ups of spent rubbers and dirty brown and yellow stuff in ponds one and two when it occurred to me the original Haitian who was in charge of tending the area had not appeared. I called his name and no response. I went to his 4 by 4 foot shed and found it empty.

Returning to the bribed guard, I asked the obvious question.

"Have they fired Arnold?"

"He there" said the guard, pointing backwards into the pond area. I returned to the ponds and there discovered something very grizzly. Arnold, floating face down, in pond four. He apparently had slipped, fallen in, and aphyxiated in the 'almost pure' contents of the next to last pond. Dead as a mackerel in a bathtub. My camera whirred and tears rolled down my cheeks. It was not the most pleasant video I had shot in my lifetime.

My first post-shooting stop was the GM's office to report my find. A white, ghastly look crossed over his face and he shouted in French for his number one assistant. I asked to use the telephone and in full view of the jabbering French duo called the police department. Then I called Blythe Duncanson, the editor of the local newspaper and asked him to join me there - immediately. The GM was so shaken by the incident it never occurred to him what would happen next.

Blythe Duncanson and I were something less than friends. But I respected his Shaun Kenny approach to island news and the fact that he was a native with above average intelligence and a knowledge of what it took to get things done in this country. When Blythe arrived, I first showed him the dead body still floating in pond four and his camera shot a roll of still film. It took an hour for the police to show up - not surprising of course. By the time they did, I had recounted the entire story to Blythe and offered to 'engage' him as a moderator on the TV report that would inevitably follow the death notice.

Now, normally, a dead Haitian, even one who apparently slipped and fell into a pond loaded with deadly chemical concoctions, would rate a bottom-of-page-two report in Blythe's semi-weekly paper. But after he reviewed the full set of tapes, the chemical analysis, and the story that I was piecing together for airing on WIV-TV, it would jump to the top of page one and serve as a powerful condemnation of the way Club Med was operating their facility. By agreement between us, he came into the studio and 'hosted' the one hour WIV report which turned Club Med every way but loose. I stayed out of it - off camera, deciding that my personal appearance would only detract from the

impact of a native blowing the whistle on the 'Club Med success story' that was at the time sweeping the country with banner headlines. We released his one hour TV special on the same day his newspaper report appeared on the streets of Provo and Grand Turk. It was a sell out on news-stands. And the TV show, which his story promoted for that very evening, was watched by virtually everyone on Provo and Grand Turk.

Club Med was in 'deep kaka', to paraphrase a local wag. Suddenly everything they did, the way they treated local employees, their building of an illegal dock across the 'Queen's Beach' and the methods they employed to rush 300 to 400 new people through customs and immigration each Saturday, became fodder for public debate. Rule number one was instantly rewritten and the GM at Club Turkoise was replaced by a new, more public relations minded fellow. Most important to me, the torrent of uninvited naked or near naked intruders into my 2 acre compound slowed to a trickle. It was now safe for my two children to venture outside onto my front yard sand dune without fear that they would be encountering three people beating our rope hammock to death with strenuous physical exercise.

Not everything on Provo was ending so 'happily' in our favor. The visit of Vice President George Bush during the Reagan years had resulted in a clandestine 'agreement' between the United States and the British Governor of the time to 'hang' our elected Prime Minister, Norman Saunders. Norman was my friend, and someone whom I could trust with virtually any topic of discussion relating to the islands. I knew he had been locally linked by gossip to supplying aviation fuel to druggie planes, perhaps as recently as 1980, if it was in fact true at all. But to hang out with these charges to the mid 80s and then drop a legal net on Norman was, I thought, pretty dastardly.

It went like this. Norman had flown to South Florida to attend a conference, as the Turks and Caicos Islands Prime Minister. A sting operation involving a group from the FBI went to his motel and allegedly offered him big bucks to arrange for refuelling at South Caicos through his Shell distributorship there. And when, they said in court, he agreed to the deal, agents popped out of every wall placing him under arrest. Norman Saunders served US federal penitentiary time in the USA and the Turks & Caicos was terribly embarrassed by the incident. The British Governor at the time was silent about their participation although nobody would ever convince me that he had not been involved from day one. Was Norman guilty? Not on TCI soil, but in the USA the net was designed to capture him in a defenseless position. The United States needed a 'headline bust' and Norman, coming

from the smallest country in the Caribbean, was their target. I felt really badly about this at the time and the lesson learned was to be valuable to me a few years hence. If the US really wants you, nothing can stop them from making you the victim.

Exit strategy

Armed with nearly a dozen hours of videotape shot at Frank Abruzzo's Fort Lauderdale dish system dealership, featuring Alli Lake and a couple of dozen semi-randomly selected consumer satellite receivers, I flew to Boston and was met by a small group of M-A Com employees. This was perhaps my twentieth visit to their Burlington facility and one of the few times there when I was not greeted with open enthusiasm. This time, I was the enemy; the one who had dared to blow the whistle on their misguided Videocipher marketing plan. It didn't take a mental giant to work out how serious my revelations might ultimately be for their bottom line in 1985; if HBO suddenly told them to get lost, something in excess of $75,000,000 would be left hanging in the air.

Before agreeing to visit, I had started with the fellow appointed to head up the Videocipher project; Jim Bunker. He was trying his best to get me there 'for a few days of intensive discussion and we will show you anything and everything you wish to see' he began.

"Nothing off limits?" asked I.

"Nothing."

"I would like to also visit your Videocipher design and brain trust facility in California, Linkabit" said I brazenly.

"Done" he responded. OK, raise the stakes.

"And I want to videotape you and perhaps others answering questions about the mess we are all in."

A pregnant pause and, "I will have to get back to you on that."

The last thing I wanted was a 'he said she said' report for CSD or me doing a talking head recital of my visit in front of the Boresight

cameras. What I did want was he and perhaps others answering my tough questions in front of the video camera lens, their own words on Boresight, and of course word-for-word in CSD. I left Bunker with a strong indication that short of getting my way, I'd pass on visiting Boston (or Linkabit in California).

In the end they agreed, perhaps because I also offered to make a full set of tape dubs from the original Fort Lauderdale testing at Abruzzo's shop and gift the tapes to them, "the minute I step off the air plane". Inside of M-A Com was a significant quantity of folks who would gladly chip in to have me meet the same fate as the Haitian on Provo who fell into the sewage plant pond. Bunker warned me in advance that I should not expect "everyone you meet here, even some of your old friends, to be enthusiastic about the visit nor respectful of your position in the industry". There were several dozen middle and upper management jobs hanging on the thread that Videocipher would not only succeed but grow into a significant part of the M-A Com cash cow. A guy from Provo, fresh off a one hour TV special with French accented sewage still clinging to his open toed sandals, was a definite threat to all they hoped Videocipher might yet be.

In retrospect, agreeing to my terms of encounter and allowing me to call the shots was a pretty gutsy thing to do; a measure, I decided, of how badly they thought their 'sewage' stank. As I would later piece together from disjointed one line comments and responses coming from a dozen or more people involved in our meetings, their plan was a mixture of, first, my 1976-onward support of Microwave Associates nee M-A Com which created for them publicity opportunities that no doubt played a major role in the growth they had experienced 'since I moved in'. And their fallback position was to get me into a position where, if 'the right deal' came along, I would hang up my video camera and portable typewriter and retreat to Provo, full-time. I was a huge, festering sore in the side of many firms, including HBO, and few would miss me for very long if a sewage pond collapsed on my bed one night.

Before flying into Boston, I had been on the telephone with a fellow publisher named Doug Brown who, with his thinly skilled editor Chris Schultheiss, published a weekly satellite TV guide and a couple of aimed-at-dealer poor imitations of CSD from a small town in North Carolina. Brown was a slightly up market carbon copy of Randall Odom; 'a good old boy from the south' who liked fast cars, big breasted women, and expensive bottles of booze. And he had balls, a risk taker of the first order. What we shared in common was an intense interest in creating specialised programming for home dish owners - a fall back

safety net to be in place on the day that HBO finally switched off their free-to-air satellite services. Doug wanted me to forget all about the fact that he was a competitive publisher and join him in a venture with a handful of others to get home-dish-programming off the ground.

My response to him had been, "I want very much to do that but it will require a full-time effort - not one interrupted by having to crank out CSD twice each month. If I was free of CSD, I believe I could make this work." He would take this as an invitation to make that happen; not how I intended the comment.

I also mentioned to him my about-to-happen trip to M-A Com, a moment of carelessness I would later regret as only Carol Graba knew where I was and what I was doing on an hour to hour, day to day basis. On the surface, everyone with half smarts knew that M-A Com hated my guts and there could be no sensible reason why they would even let me off the plane in Boston. That was the industry logic, short as it often was of the depth required to fully understand how deeply my connections inside M-A Com ran; I was 'family', the 'son who had gone astray' but who still commanded family respect. Publisher Brown took my travel plan comment as some sort of advance headline warning and while he did not ask me why I was going to Boston, it would later become obvious he wasted no time finding out as we hung up the phone.

Brown, for his fast cars-big women-booze background had an 'outside-the-box' mind that could create two unrelated scenarios and then in the final chapter of thought marry them together into a fine finale. Before I arrived in Boston, he had Chris Schultheiss on the phone to my host Jim Bunker. A plan was evolving, with M-A Com funding a way for Brown to take over CSD ostensibly to get me into full time projects involving the creation of made-for-home-dish-TV channels. I of course was oblivious to the subterfuge and would stay outside 'this box' for many months to come.

Brown saw in CSD a 'cash cow' he wanted. His own Schultheiss creations aimed at industry insiders were a money losing waste of paper and ink, subsidised by the runaway success of his weekly satellite TV guide publication which he had been fortunate enough to place onto news-stands throughout the eastern states and south. If he could get his hands on CSD, merge it with his own failures and 'use' my name to keep the CSD bucks rolling in, he could just about name his price tag with the likes of M-A Com and HBO, to list two of perhaps three dozen firms that would like me to evaporate like Club Med effluent into the Provo air. His claim to fame would be represented

by a button he wanted to wear to future trade shows: "I got rid of Coop!" None of this was apparent to me as it was happening; we get smart 'late' - sometimes, too late.

Inside of M-A Com, there was an undercurrent of tension surrounding my visit. I immediately detected two camps - those who had voted against the visit and those who believed someplace in the visit would be a compromise that would swing the pendulum away from their neck. Bunker led the latter group, and after his undisclosed conversation with Brown's Chris Schultheiss, which he shared only with his immediate superiors, I knew something was up. But what???

My first instinct was that they were going to offer me a tidy sum of money to forgot how to spell M-A Com. Corporate bribes, however disguised, were hardly a new technique. I was not far off the mark - something I would be unable to work out for almost a year. They weren't going to directly offer me money to change my tune - rather it would go to Doug Brown in the disguise of a much enlarged M-A Com advertising budget to his publications in return for which Brown would be the hatchet guy sweet talking me out of CSD and all that it represented. But I am far-far ahead of the time line here.

The more immediate challenge for Bunker and crew was how to deal with my visit. The Abruzzo-Lake tape dubs promptly disappeared into M-A Com engineering where their top Videocipher specialists went to work trying to dissect what we had done to otherwise 'stock' receivers to make them function with the clandestine Videocipher decoder. I had done some very minor editing of the tapes to protect our source of the box, Doug Dehnert. Each Videocipher carried a bar code serial number and it was important that we eliminate or 'cover' that on-screen information or they would have traced it to Dehnert and ultimately Johnston Island in 30 minutes time, through HBO computer files. Alli Lake on video would be so impressive to their engineers that he was instantly offered big dollars - far more than Alli believed existed in the 'real world' - to come to Boston to work for 'the source'. He refused, already packing his bags to come to Provo to work for me full-time.

In front of me as I write these words is the front cover of CSD for July 1985. Jim Bunker is full page, staring at a TV screen which displays Jim Bunker looking at the live Jim Bunker. The front cover announces, "M-A Com's Bunker Talks Back". My visit provided the Boston firm with a unique opportunity to answer an entire industry of criticism both in print and on the suddenly very popular Boresight television show. Only a tiny inner circle of friends realised I was 'going out on a high note'.

Back in North Carolina Brown was already at work putting together an 'offer' to me which he would pop shortly after the first of July. Never underestimate a 'good old boy from the south who favors big breasted women,' a lesson I had first encountered with home dish pioneer Robert Coleman and his attractive, ambitious, wife Lib. Brown invited me to visit with he and mealy-mouthed Schultheiss in their facility; a number of others including Taylor Howard from Chaparral would be there. Taylor vacillated between great disdain for me personally and trying to work out how he could remain the 'numero uno honcho of home dishes' against the twice a month revelations of CSD - CSD/2. I had fried his goose on several occasions, discovered his creativity of the Polarotor feed system had been clearly a bald-faced fabrication, and ruined his tenure as leader of SPACE by pointing out how he had been corrupted by his servitude to Rick Brown's dominant posture. It was not one of the more friendly sessions and as my wife Gay would quickly notice during a dinner we had with Taylor nearly a decade later in Thailand during a satellite conference there, in 1993, he had a poisoned memory of our conflicts that lasted possibly until his death in a private air plane accident in 2001. Over a Thai dinner paid for by our host Mark Long, who had arranged the Asian satellite conference, Taylor launched into a blinders-on recollection recounting how the home dish industry 'began'. I listened with bemused indifference as he attempted to establish his pre-eminent position as 'the father of home dishes', until he paused for a breath.

I smiled and interjected, "Yes, I still have the 3/4" tape I shot at your San Andreas (California) home in 1979. Do you remember when you took me out back to look at the satellite dish you had acquired through amateur radio connections?"

He did.

"And how you showed me where you dad had come out in the dusk to pee onto the concrete pad holding the dish?"

He did.

"And how when I photographed the spot where your dad took a pee, you remarked that you wished you had scratched into the wet concrete of the freshly poured pad because it would have been a date which would verify your first interest in receiving satellite TV?"

He did.

And then it hit him. He and Rick Brown had used a post-fresh-concrete date inscribed into the dish base many years later to substantiate Taylor's claim to 'being first' with a home dish system. And it also struck him that if I had videotaped where his Dad had

peed onto the pad, I would have videotape proof that no date had been there in 1979 during my first visit, invalidating his claim to having done just that in 1976.

He promptly changed the subject to the Thai dinner food.

Doug Brown's plan was that a group of industry entrepreneurs would assemble a side business to create between 4 and 8 TV channels which would either be free to air and paid for by 'donations' coming from voluntary stipends at the equipment manufacturing level, or, 'scrambled' using a technique which would be incompatible with the M-A Com system and available only through dollar-participating members of the programming consortium. There was little novel about either approach - Intersat's McClaskey had come up with similar recommendations a year earlier as CSD had reported at the time. Keying off of McClaskey's detailed study and a similar one created by a Tulsa firm (United Video), which CSD had also reported in depth late in 1984, Doug Brown believed the industry could create no less than $500,000 each month to maintain 'home viewing programming' which would supplant the 'missing' HBO, Cinemax - plus channels when they finally switched to full-time encryption. I felt we were talking about $5 million a month, not $500,000, and covered a blackboard in Brown's family rec room to illustrate why.

My attention to the plan was only partial. Nobody was addressing who would run this and while it seemed obvious it had to be me, Howard and others were not indicating they agreed. Further, Howard kept interjecting his belief that it had to be a SPACE effort which was a red flag to me. Rick Brown involved in programming seemed like a cancer we did not need. After a long evening of diatribe-dialogue I was ready for bed. Host Brown was not. As the group broke up he motioned for me to stay.

"I want to buy CSD and fold it into our dealer publications" he began. "Think about it overnight. And tell me how you might like to be paid."

Something to sleep on. Or as happened, something to keep me awake. Getting off of the merry-go-round was certainly appealing but if it was intended to be a stepping stone to creating a home dish programming world, nothing I had heard that evening seemed likely to work out. In the middle of the night I called Carol Graba in Fort Lauderdale and after explaining what was happening asked her what she thought 'we' should do. Carol by now had moved into my Florida condominium apartment and as my closest partner in life was a part of anything I did if it involved some change in 'our' life style.

"Have you been drinking?" she asked. I admitted I had, but only lightly.

"Are there any large breasted women there?" she next asked; an inside joke because Carol without a bra looked very much like a 14 year old boy. "Take two aspirins and call me back in the morning - say 8AM. You've ruined my sleep now and I'm going downstairs to make us both a cup of coffee. Yours will be on the lace doily I bought you in Fort Worth." A very special message from a very special lady.

In fact none of Doug's plan made any sense at all. The April 1985 issue of CSD contained 116 pages but by July we were down to 80. Advertising support had fallen by about the same percentage (30%) as the page count. And with many good reasons.

Reason number one. HBO had revved up their Time, Inc. attacks on home dish ownership and with the support of state and regional cable TV associations, for every positive-dish story one found buried in the back of the Amarillo newspaper there were five in the front warning people against purchasing a home dish system. Dish system sales for the first six months of the year dropped by 25% which created a tremendous over abundance of equipment in the pipeline. 'Trade magazine advertising' was the first victim.

HBO selected Canada to test a new aggressive anti-dish project massaged by their employee Ed Horowitz. Canadian sellers of home dish systems, you may recall, were coasting on a decision from a high level judge that if HBO and friends really wished to keep their service from Canadian viewers, they would scramble the transmissions. HBO, not yet quite ready for that step forward, went to work to create a major television news story using the Canadian CBC (government operated) 'Marketplace' show to make ownership of a home dish seem like sheer lunacy. Marketplace, in April 1985, produced a piece which was written and perhaps even directed by HBO. It said, in as dramatic a way as possible, "Ownership of a C-band home dish which allows reception of USA cable programming is a bad investment. Soon, very soon, the 'skies will go dark'." Translation? Scrambling is coming.

Horowitz was a PR guy at HBO, and he had stumbled onto a test tube scenario which CBC accepted lock, stock and barrel. "We are already testing scrambling, and in Canada the descramblers to be manufactured by USA firm M-A Com will simply not be available. Anyone purchasing a C-band dish system will within sixty days find a very large number of the presently available channels gone."

CSD Canadian Bureau Chief Mark Lewis, a close personal friend from the 60s and now a solicitor specialising in telecommunications

law, was initially videotaped by the Marketplace crew offering a counterpoint to that propagated by Horowitz. Mark was an experienced interview-subject, and arranged for a copy of his own reaction to the Marketplace questions. When the report, running nine minutes, was telecast, it was totally anti-dish ownership. Moreover, the Lewis retorts had been ignored; 'lost' on 'the cutting room floor'. Marketplace was either very badly managed by inept TV journalists, or, HBO was in charge of the 'edited-for-air use' piece. CSD found it curious that Marketplace went so far beyond normal 'good journalistic practice' in creating their report to Canadian viewers, telling only one (HBO) version of the story.

Canadian dish dealers reported that post-Marketplace, sale dropped by 75% for several weeks, and then slowly inched back but never to pre-Marketplace report levels. What HBO's Horowitz learned from this reaction was painfully evident. If he used the catch-phrase "the skies will go dark," he could expect a significant negative shift on the part of potential buyers of earth terminals.

Reason number two. The total confusion about how, when and by whom scrambling would be implemented left dealers with no good answers when prospective buyers came into their stores asking elementary questions about 'the future of owning a dish'. The newspaper (and magazine) stories were cutting home dish systems down to size while the scrambling confusion was making dealers who had no 'honest answers' ineffective salesmen for the few folks who still stopped at their shops.

Reason number three. Bankruptcies and Chapter 11. David McLaskey's Intersat, Locom - the Pennsylvania firm that made LNA equipment for Intersat and others, Randall Odom's Arkansas state-of-the-art fiberglass antenna factory, more than a dozen 'name brand' and prominent industry OEMs had 'gone under' or were struggling under Chapter 11 to salvage their assets. David Johnson's Paraclipse, heading for a 30,000 antenna production month as 1984 wound down, was back to digging deeply to locate buyers for a 'mere 5,000' in the month of June; their advertising had cut back from eight pages in four colour to two in black and white in CSD, which was two more than any other publication ran that month.

Reason number four. Lawsuits. Consumers were bringing suit against dealers because equipment did not perform as promised. SFPC, the Bill Young initiative introduced in the fall of 1983 in consort with First National Bank of Wilmington, Delaware, had folded up and quit. Young blamed the bank claiming they were not honoring their written

agreement to supply funds and support for the SFPC effort to sell 'financing' and 'insurance' to the home dish industry dealers. Young, never modest, wanted $300,000,000 in damages and filing under a little known, less understood federal statute, if he won in court the 'damages' could at the discretion of the judge be upped ten times; $3,000,000,000!

I had spent many weeks during the first half of 1985 visiting with people who knew and respected me within the cable TV industry. Virtually everyone I talked to, like John Sie on the stairway on the Las Vegas show back in early April, said the same thing.

"Cable now has its act together. There is almost complete agreement amongst the major cable players - including both the cable operators and the cable programmers - that 'this TVRO thing' must be stopped, now, before it gets so large as to be a significant threat to cable."

If I needed further proof of the 'cable conspiracy', I found it close to my CSD Florida office. There, several counties had adopted an ordinance which prohibited the installation of home satellite dishes - until the applicant asked for and received written permission from the local cable company!

An old cable pal, serving 550 homes in a small Oklahoma town, told me he had 'lost 44 cable subscribers to dish TV' between January and April. He collected $5.25 per month from each of these homes for 'basic cable' and if they also took his optional HBO-plus satellite channel package, another $9.95 per month. So 44 homes times $15.20 per month was $668.80 each month he no longer banked. It was difficult for me to be terribly concerned about his 'financial plight' because he owned a two engine private plane, a pair of Mercedes, and lived in a 5,000 square foot home with pool and tennis court - all paid for from his 15 years as a small town cable operator. But there was of course more to the story.

In the 1985 cable world, amalgamation was the name of the biggest game in town. Fifteen years hence, the nation's ten largest MSO firms would 'own' 85% of the nation's year-2000 65 million cable homes. My rural-Oklahoma cable pal would shortly be enticed to 'sell out' to a larger firm and he would do so at around $1,100 per cable subscriber. Those 44 cable homes he had lost earlier in 1985 would reduce his net sell-out fee by $48,400. If he lost another 44, close to $100,000 he would not bank and retire with.

What got cable TV's ultimate attention to this matter was a NCTA (National Cable Television Association) funded study through the Washington consulting firm of Malarkey and Taylor, two pioneers from

the early 50s cable world. Their study projected that by 1990, barely five years down the road, home dishes would eat up 12% of the cable TV marketplace, and absorb 1,700,000 existing cable TV subscribers. At $1,100 per cable subscriber net value, this suggested a huge dollar drain from the cable world's asset base - approximately 2 billion dollars in cable industry assets gone to home dishes.

It was, therefore, no surprise to me that some of the larger cable MSO firms became proactive during the summer of 1985 with their considerable influence to redirect the cable industry energy towards the utter and complete defeat of any further home dish growth. Tyrgve Myhren, for example, CEO for ATC (American Television & Communications), issued a statement which he intended to be very public. In it, he stated that any (meaning ANY) cable intended satellite programmer who did not agree to scramble their service using the M-A Com Videocipher system would be in danger of losing his firm's 3,000,000 cable subscribers as customers. He was not talking about or to HBO and Cinemax. He was talking to Ted Turner's WTBS/CNN/CNN-2, right down to 'The Weather Channel'. It was a powerful 'scramble or lose us as a customer' edict.

It was the 'shot in the arm' that HBO needed to persuade fence sitting programmers they should - must in fact - jump onto the Videocipher scrambling bandwagon. If we might be looking for a pivotal 'turning point' where the home dish industry began back sliding down hill, this would be it. Sales were already down, publicity abounded telling new consumers to 'stay away from' home dishes, cable operators in small and large towns were reacting with anger and stiff opposition because at $1,100 or more a pop they were losing 'asset value' to guys hauling ten foot mesh dishes around on modified boat trailers, while, internally, the home dish trade association was in total disarray.

If I needed one more sign to convince me that this might be a good time to retire to Provo, permanently, SPACE's Brown and a handful of inner-circle friends provided it late in August. *They* were going into the 'subscription TV business'.

SPACE's Brown (as opposed to co-publisher Doug Brown), Sandy Wirth (Delta Satellite - a distributor), James Rothbarth (STS - the mysterious original importer of Luxor products) and Bud Ross (systems OEM Birdview) - four cards to draw to. Carefully. Very carefully. Under the guise of 'doing something good for the home dish industry,' they announced plans to form a new company that would, in partnership with also-ran satellite movie programmer SelecTV, bring films to home dish owners. On the surface, the plan was similar to what I had first

proposed in CSD back in 1980, and then repeated each year thereafter with ever more complex detail. Below the surface, we had SPACE sending mixed messages to both our industry and the cable industry about the trade association's stance vis-a-vis scrambling, when along comes the most powerful single person in the trade association to announce he is going to 'do the HBO thing' - offer scrambled movies for a fee.

If HBO was a Chevrolet Corvette, SelecTV would be a Nash Rambler. If ATC's Trygve Myhren was a New York skyscraper, Rick Brown was a push cart operator in the Bronx. The only aspect of Brown's plan that made any sense was his brazen approach to doing first and foremost that which benefitted Richard Lewis Brown. He would comment during the September Nashville trade show, "You just happen to have a General Counsel who is also an entrepreneur."

During July and August I wrestled with a personal 'exit plan', under pressure from Doug Brown to make a decision and wearing Carol Graba's ears and mind to a numbness with long monologues that explored every scenario I could fathom. It did not help that I was now 47 years of age, living 'separated' from my family, and after 7 intensive years of bouncing world-wide at the drop of a word or telephone conversation, exceptionally burnt out. My journalistic instincts were no less well honed; if anything, I did things automatically because for every possible question posed to me, someplace in my background to 1960, and before, I had 'been there' and worked out the particular problem now being thrown my way. It also did not help that the enthusiasm I carried for Ted Turner's expansion of CNN into Europe had been squat upon during a series of uppers and downers beginning with Dr Carol Sue's first proposal to Ted in May.

True to my instincts, when Turner heard the plan from 'the million dollar girl' he had jumped up from behind his desk and shouted, "Great plan! Let's run with it!!!" which allowed Carol Sue to rush me to Atlanta for a series of brain storming sessions with Turner's top people. Being a lone eagle with nobody to answer to of course made me somewhat obnoxious to Turner's bureaucracy. I was, like Ted, accustomed to simply saying "Great Idea! Let's run with it!!!" and then running as fast as hell to get the job done. Of course he was a billionaire and I was - generously - not yet a millionaire. So if money talks, I was bullshit in the eyes of guys and gals working for Turner who believed they were important cogs in the Atlanta machinery.

Turner folks in 1985 were struggling to find platforms which would endear this shoot-from-the-hip man to themselves. Reese Shoneman, a skilled broadcaster Turner had hired from a major US network, was

in charge of getting CNN into Europe. He probably earned more each year than my total net assets were worth and was not impressed with me nor with the mysterious Dr Carol Sue who seemed to have sprung into his life out of a Cosmo magazine full page advertisement for the modern woman.

I saw in the CNN exercise an opportunity for the American TVRO industry to make big time, valuable, points with the world. It had been an American development, this 'TVRO thing', and I was if nothing else proudly defensive of how much we had accomplished in technology and market penetration in five short years. After Carol Sue had secured Turner's blessing, and I found myself alone in an office with Turner, I hit him between the eyes with 'plan two'.

It was this. Select ten locations where he - Ted - would most like to have CNN-Europe viewers. I primed the pump with a couple to help his mind focus on where I was headed. 'Ten Downing Street' - the residence of the Prime Minister of England. The Vatican. And seven more that included the official residence for the elected leaders of Germany, France, and so on. He listened intently and quickly saw the publicity and emotional value of having these 'official' persons in his first group of viewers 'in Europe'.

He had been scribbling down locations on a yellow pad, each with a number next to it.

"And the tenth?" he asked.

I took a deep breath. "The Kremlin" responded I.

Reaching for a desk phone he broke into a smile plus nervous laugh and directed the party answering to "get your ass in here - pronto."

The 'party' was Reese. We had already met, and his cold indifference to my presence was hardly a good sign. That I had been sitting 'alone' with Ted, and he now was about to be told something, by me, was hardly a good start to my presentation. I nervously repeated it to the man and he shook his head but not in agreement.

He did not like it. Not-invented-here might have been one reason. He had eight or nine more, all quickly thought up and none major stumbling blocks. I was already past my 'use by' date with the man so I went for broke while I still had Turner's attention.

"I want to do this with Americans. I can arrange the equipment, it will cost Ted not one thin dime. I can arrange the people, skilled satellite people from the American industry that built this technology into what it is today. They will not cost anything. Think of the excellent opening day, week and month video footage that will come out of this. Margaret Thatcher gets up in the morning and what does she do

first? Turn on her CNN coverage!"

Instinctively, I knew that one phone call would secure everything we needed in the way of hardware. I also knew, from our Sri Lanka experience with Arthur C. Clarke, that teams of extremely skilful installers could be fielded to go to each location with a minimum of fuss to put in the equipment required; ten teams, all locations done in one whirlwind week. I also knew that any equipment supplier participating would gain month's of advertorial coverage in the trade and general press for their part in the project.

"Not cost Ted anything?" asked Reese, looking for confirmation.

"Not directly" I answered.

"Which means what?"

"It means that somebody needs to pay for the air travel and some minor lodging and expense costs for each of the installation teams. And transport the equipment from a central depot, such as here in Atlanta, to say Berlin or Paris or Moscow."

And that was a mistake on my part. "Free is not free, after all!" he was saying.

"Yes it is," I retorted. "You have major advertising vehicles here and for almost no effort you can secure script from airline companies and hotels to trade WTBS or CNN or CNN-2 advertising time for the airline travel and hotel accommodations. No money out of your pocket, at all."

Turner suggested Reese and I retreat to some other office, suddenly having no interest in the nitty gritty mechanics of getting the project off the ground. I reluctantly agreed, suspecting as would later be proven that my stature was about to be deflated the minute I departed Turner's office.

Throughout the summer, perhaps five trips into and out of Atlanta, I appeared to respond to 'hurry up and get here' demands that seemed to be floating on a bed of uncertainty. Each trip to Atlanta was anti-climactic. First we were going to do it, then we weren't. And then we were and so it went for 60-75 days. On, and off, and on again. When it was 'on', I made calls to suppliers and potential installers with as expected results: DX Antenna would 'be pleased' to supply all of the equipment, and for every installer who would go there was a waiting list of ten more. Reese finally liked the plan, but he did not care for me and did not understand what (if anything) Dr Carol Sue had to do with it. When I finally walked away after being beaten to a pulp by the uncertainty of what would happen, the plan was a 'go' but only provided the installers pay their own way to London or Moscow, plus

their own hotel and living expenses. If it happened, it would be without me. And Carol Sue.

All of this was kept below vision level, mostly out of CSD, and away from ears that might profit with forehand knowledge. I would eventually, in the mid-October CSD, mention the plan in my 'Coop's Comment' segment but then primarily because CNN-Europe (under the initial title of 'ENC - European News Channel') had launched late in September and I wanted to record for history what *might* have happened if events had gone differently. It is with deep regret that Dr Carol Sue's and my original plan did not bear fruit. I would eventually work out why.

Turner's services on satellite were totally beholden to the American cable TV industry. His mild flirtations with DTH (direct to home - dishes), culminating in his appearance at the 1984 Orlando trade show, had triggered some severe warnings from folks like Tyrgve Myhren at ATC. If cable was going to 'survive' the home dish threat, it would be because every aspect of cable had pulled together as an industry to defeat these wild eyed folks with dishes stuck on portable trailers. When Carol Sue had first proposed 'our' plan, cable was still groping to create a unified, acceptable-to-all, adversarial position to deal with home dishes. By the time I arrived and had an opportunity to pitch the second part of the scheme, ATC's Myhren was widely reported with his threats to 'all cable programmers' to pull behind the cable-TV-ship or risk being left abandoned in port. What amazed me at the time was this. ATC was owned by Time, Inc. - the same Time, Inc. that also owned HBO. The collusion between the two was apparent even to a blind person.

My CNN/ENC plan was hardly a threat to cable TV; this, after all, was to be in Europe (and Asia if one cuts hairs and accepts that Israel is not in Europe). But it was 'the home dish industry' and, perhaps least friendly of all, 'that traitorous ex-cable Cooper guy' putting the pieces together. The 'on-again' and 'off-again' nature of support for the plan was a direct reflection on who had most recently pulled on Ted's chain from the cable camp. One day he felt 'comfortable' with the plan, certain it would not paint him as 'being in bed' with the DTH folks, and he then approved another planning session in Atlanta. But a week later someone else lectured him about having 'anything-at-all' to do with TVRO and we had another rush meeting to void the preceding session. And so it went until CNN nee ENC was finally launched late in September. In 1985, at least, The British Prime Minister would still be watching the BBC in the morning.

The split

Somewhere in all of this intrigue and back stabbing I reached a personal decision. I *would* sell CSD to Doug Brown, ostensibly to devote full time to creating a free to air or industry operated pay-TV package, quite outside the effort by SPACE's Rick Brown to create a private stash of pay-TV movies. In fact, I had no sincere interest in this project, certain that the people Doug Brown had assembled were either too far removed from the programming world to be qualified participants, or more serious - the money they thought it required was a fraction of what I believed was required. In an industry with only a 'shell' of a trade association, badly declining sales and a huge public relations challenge, even getting $500,000 a month for programming was going to be very iffy.

In my own mind, I accepted I would be running away. Carol Graba had plans as well - she conjectured we would be married. Doug Brown's purchase of CSD was pretty straight forward, if on his part a poor business decision. He would pay me $300,000 (and change) in two payments - starting with $150,000.

Sometimes it is the small things that count. Doug owned a pair of Chevrolet Corvettes, a 1984 and a 1985. Both were 'fully loaded' with the largest engines Chevy offered for 'street machines'. My first Corvette was a 1960, a replacement for the Austin Healey smacked-into-tomorrow by a wrong-way driver in Modesto while I was humping for KFIV and ABC Radio. I happened to be in Brown's Shelby, North Carolina office on July 17th, son Kevin's 16th birthday. On the phone to Kevin, after saying what was appropriate for his entry into manhood, I heard myself saying, "How about coming up here and driving back

with me in a new Corvette?" I'm not sure where that came from but after leaving Kevin in Florida excited by the suggestion, I got off the phone and related to Brown, "We can do this deal (your purchasing CSD) if you throw in a Corvette for a year, no cost to me."

Kevin had been scheduled at 16 years plus-one day to sit for his Florida driving license, which he would pass with a perfect score. Shelby to Fort Lauderdale was a comfortable sub-800 mile drive down US Highway 95 where if we were careful and paid lots of attention to the installed M-A Com designed police radar alert we could easily roll along at 120 to 140 miles per hour for at least brief spurts. What better way for a young man to pass into adulthood than at the wheel of a current model Corvette on a 7 to 9 hour jaunt to South Florida?

Brown agreed and within a few days Kevin and I were passing through Georgia in slightly more than an hour with him at the wheel and me with eyes glued to the radar detector. In truth, I had not driven a Corvette since they reworked the suspension and road grabbing control system back in the early 80s. Avcom's Andy Hatfield owned Corvettes, which he seemed to demolish at regular intervals, always just before I dropped in for a visit to take him up on a long offered invitation to drive his latest toy. In 1960, I had fantasised changing life styles and becoming a professional race driver - not something I was qualified to do but which once you have run around Laguna Seca a few times you foolishly think you could do.

Straight-as-an-arrow US95, on the other hand, was an open invitation to chance ending up in a rural South Carolina (Georgia, Florida) jail in a car that barely broke into a sweat (and remained in fourth of five gears) with the speedometer reporting back 130 mph. The trip was all to brief (Kevin: "How about running out to Los Angeles next weekend?") but it was a serious bonding of father and son.

Doug Brown had agreed that he would also pay me, in addition to $300,000 in two payments, an additional $15,000 per month for a one year transition year while I helped him assimilate CSD into his publication camp. And, he demurred to my urging the 'CSD editorial office' could be retained in Fort Lauderdale and this allowed Carol Graba to maintain both the mechanics of each issue and for a six month period the publication's printing and mailing. What neither Doug nor I thought bright was a wholesale changeover of CSD - "Coop's Magazine" - in any way that might raise eyebrows in the industry. In print, for September 15th, I related that all of this was a 'mechanical arrangement' which would allow me to devote time to the new challenges of locating free-to-air programming for the home dish world.

Time, yes. 'Devotion'? No.

Carol was understandably not certain what this might mean for our day to day workload, my assurances aside. Because she was in America with a long ago expired visitor's permit, ostensibly to visit her sister who had married an American native, my frequent suggestions that she 'come with me to Provo for a week' fell on nervous ears. Going out was simple enough - her British passport was still valid. But coming back was another matter.

As a frequent passenger on the Miami-Provo-Miami jaunt, I knew the routine which I could navigate blindfolded. A plan evolved.

If you claimed US citizenship, upon returning from Provo, one was shunted into a US Immigration line reserved for US residents. Once in that line, you were required to show a US Passport, a US Birth Certificate or a US Voter Registration card. Carol had none of these.

So one day after Kevin and I zipped down US95 to Fort Lauderdale, Carol and I, pretending we were a married couple recently moved to Florida, stopped at a state operated Voter Registration office. She was terribly nervous about it all, until it became clear that if I went first and we both displayed our Florida driver's licenses, the Vote Reg card was a straight forward procedure. Thirty minutes later she had the coveted card that would allow her back into the United States, from Provo.

She made the reservations to and back and by coincidence John Ramsey was planning a trip at about the same time; a foursome as it were. With a much reduced CSD work load, getting away for a week was doable. But something outside of my affection for and admiration of Carol was gnawing at me. Perhaps it was a belated mid-life crisis, I never worked it out.

Earlier in September at the SPACE/STTI trade show, I had stopped at the Avcom of Virginia booth and renewed my acquaintance with Andy Hatfield's estranged wife Patti. She and Andy had been present at the original Oklahoma City show in August 1979, and as few others could claim, had not missed once from that date. So having shared numerous meals together, often at least originally with her husband Andy and my wife Susan present, and having also shared a trip to Birmingham (England) to attend Europe's first cable + satellite show, we were 'mates', after a fashion. During our Nashville conversation Patti told me she and Andy had decided to retain their joint business interests in Avcom (she owned 25%, Andy 75% which totally explained Andy's approach to the world of business). But - they lived apart, Andy had a stable of feminine friends and she - well, she simply smiled

when I was abrasive enough to ask.

In 1985, Patti was 40, reasonably attractive but more than attractive, very bright and I thought she had been and was continuing to be badly treated by Andy. Years prior on the train to Birmingham, I vividly recalled Andy cornering our CO-traveller Jamie Gowen (the man with the fastest zipper in the west) and saying quite memorably, "I cannot get enough these days - help me find a 'English Bird,' preferably here on the train, before I explode". Something inside of me had felt great empathy for Patti at that moment and I retained that feeling during our 1985 Nashville end-of-show discussion.

"Ted (Turner) is holding an event in London late this month to launch his CNN Europe service. Would you like to go?" I asked. In my shirt pocket I had VIP invitations.

She of course thought that sounded like a fine idea and as I would later learn, returned to her home in Richmond and promptly went on a buying spree to locate a series of fashionable dresses, shoes and wraps to suit the occasion. The trip was a few weeks into the future and I booked tickets.

I didn't know very much about the 'personal Patti Hatfield' at that point. She was tall and in her own way striking. She had helped support the original Avcom by continuing her school teaching chores while Andy and she turned a spare room card table business into a money spinner of the first order during the launch years 1979-1980 of the home dish industry. She also had continued her education and proudly framed her Masters Degree from the University of Virginia in her home office. And while marriage had failed, a 25% interest in Avcom kept her in the firm's office overseeing the accounting and business departments 6 days each week. If living with Andy for nearly twenty years had not produced any children, it had made her a total disciple of his bent for keeping track of every penny of income and a tight fisted control on outgoing expenses. Patti, unknown to me but perhaps not to her, was less than six months away from becoming 'the next' Mrs Robert B Cooper, Jr.

We kept our liaison well below the surface of visibility for several months. Free of the monthly grind for CSD + CSD2 with Doug Brown and crew now doing much of the mechanical chore, I discovered the ultimate luxury in life; waking in the morning wondering what I might do that day. For as long as I could recall, the last thing I did each night before retiring was to create a list of assignments (me for me) which in turn I would reread the following morning and add new entries that always seemed to occur to me while sleeping. Wife Susan, Carol

Graba, to be wife Patti Hatfield were all bemused that each list began with a singular notation:

"Get up."

Until the day when the magazine's innards moved to Shelby, North Carolina the list went onward from that point to several dozen entries. Carol Graba 'edited' the list for the first day of freedom by crossing out "Get up" and replacing it with:

"Don't get up - stay in bed with me!"

Carol was tolerant of my 'interest' in Patti, less comfortable with the rationale behind my decision with Doug Brown that the CSD Fort Lauderdale office should stay open. Paying the costs of the office, and Carol's generous but well earned salary, came out of the $15,000 monthly Doug had agreed to pay me to 'mentor' the magazine for one year. It would be six months before I came to appreciate the wisdom in keeping the Fort Lauderdale office open.

Carol retained her position but lost her best friend and lover in this process. It just sort of happened. Some insight into the 'allure' of Patti Burke Hatfield may help explain my unorthodox behaviour.

The scene is this. We are in her home in Richmond, which for 15 years or so she had shared with Andy. And his Thompson submachine guns and other collectibles.

"I have some cash stashed in this house and will you please find it while I am at work?"

From Avcom's day-one at satellite trade shows in Oklahoma through then-present 1985 they had always hauled along small cash sale items. Things they could sell to attendees which would not be counted, no records kept. Things like? Well, early on - packages of microwave chip capacitors with which the early pioneers built their Tay Howard receivers or tried to build their Bob Coleman LNAs. $25, $50, $100 items.

Andy and Pat had a 'family' understanding. Andy produced the parts from inventory at Avcom, Pat made up the packages, the parts were too small to be 'missed' and they split 50-50 the cash receipts. Andy had his stash, Patti had hers. And she had from day one found elusive hiding spots around the house (which they shared until 1984 or so when he moved out to his 'castle' - another story).

"The problem is I don't remember where I hid the money."

"How much money?" asked I.

"More than 100,000" said she. Humm. This was going to be a FUN DAY!

"Give me a clue - where to start looking?" asked I.

"Start with the heating grates" she responded. The house was force air heated from a central garage hulk of a machine with sheet metal ducts buried inside of walls, floors, ceilings. In each room of the abundant house were several grates out of which the hot air poured in the winter, cool air in the summer. And into which she had been pouring twenty, fifty and hundred dollar bills for five years.

Fortified with coffee (which is what reminds me of the story at this moment) she kissed me warmly and drove off in her sex van to Avcom leaving me to scope out the heating grates. It was December and the grates had hot air in them. The metal grated cover popped up for each, or down in the case of those on the ceilings. And just before leaving for Avcom she demonstrated the technique to me, bending down and grabbing a grate with a tug. Once open, she reached her long slender arm and sinewy fingers into the grate and with a plunge into darkness bounced up clutching a white cotton bag tied with a string which was located by her finger tips down inside the ducting.

"That's one" she announced, tossing the bag at me. "There are probably another hundred or so around her someplace - have a nice day!"

I did. For awhile. The bags heaped onto a kitchen table and after perhaps 20 or so I thought it imperative to stop for something to eat. While the stove was coming up to speed my curiosity got the better of me and I began opening the bags. It took an hour to count up to $32,000 in now cooling, soft cash.

On the telephone now with some excitement, a report to the lady at her Avcom desk.

"How many grates are left to check?" she asked. The answer was I had managed to check grates in around half the house.

"Oh dear me!" was the response. "There's a lot more money than that to be accounted for. I wonder where I hid the rest if this is all you've found so far?"

This was a lady who had more peculiar habits than a nun on Viagra including a memory so complete she knew which shoes she was wearing at a trade show on a specific day four years prior. Not a big deal? I was given another task weeks later - boxing up her shoes for transport to Provo when we moved her there. More than 250 pairs of which 200 or so all looked identical to me (they did not to her). That she did not know with great accuracy where she had hidden enough unmarked cash to buy several new Corvettes simultaneously seemed totally out of character to me. Clearly, I was being tested for some reason. But how and why?

By mid afternoon the heating ducts had come clean - or so I thought. The cash stash mounded on the kitchen table now was someplace in the region of $70,000 including several surprise bags filled with South African Krugans. My mind fair boggled at what kind of satellite show folks wandered around spending South African gold coins; the twin Ricks (Brown and Schneringer) would have loved to locate these guys!

Another telephone report.

"ALL of the grates???" I was quizzed.

"All"

"How far did you reach inside each and did you go in both directions?"

As far as my arm would go before I would become welded to the floor with my upper arm permanently wedged into a compromising position where she would have found me moaning when returning from work, was the response.

"Not far enough!" was the retort.

Patti's arms were perhaps a inch, two at most, longer than my own and certainly thinner. That she might have an advantage over me was without question, in this department. And that she might have pushed stuff in as far as her finger tips could reach was certainly a trait I could quickly fathom. She could also wrap her legs around an animate object several times but that is another story.

"OK - after I crack (another) bottle of wine, I'll go back over them again now I have spotted all of the grates - and I'll get a metal clothes hanger to use as a fishing rod. But I worry I might actually push some of the bags further in this way."

The image that bags so moved might never be found was forming in my mind.

"Have you found the jewellery yet?" She was testing me. I had not.

"How about a flashlight and mirror to check out the ducting before you send a clothes hanger into the metalwork?" she suggested.

The hell with the wine. What I'd start with was a bottle of fine Scotch from her abundantly stocked liquor cabinet.

"$70,000 and change seems like a pretty fair start!" was my final comment.

"Not nearly enough" was the answer I heard. Yes, I was being tested. So here I was, a guy with some credentials as a guru in a highly technical industry spending my day laying on my stomach a quarter smashed from wine and Scotch dangling a three cell flashlight and a compact makeup mirror into a hole in the floor of a house in suburban

Richmond while trying to balance a bent clothes hanger as a fishing hook searching for unmarked bags of booty stashed by a lady who knew more about hoarding money than Nelson Rockefeller. And I thought Rick Schneringer was a basket case. Perhaps I should be looking into that makeup mirror at myself! How the hell did I get this assignment?

By the time Patti arrived home from work I had again inspected all but a few of the grates - those left undone were located in corners and under heavy pieces of furniture where clearly it was going to take both of us if we could work out how to shove two arms into a hole in the floor barely bigger than a trio of twenty dollar bills laid end to end. I will say this about my relationship with Patti for at least the first year or so. Anything closer than a foot between us was a danger zone. So naturally when we hit the first hole by laying down together on the floor with arms dangling into a 'floor vault' the purpose of our hunt was quite quickly lost. For about an hour I'd say.

One of my all time favorite movie scenes involves two folks riding in a French short haul elevator during "What's New Pussycat?" Most males have this fantasy of engaging in sex while zipping across the sky at 30,000 feet in a jet commercial craft; the 'mile high club' it is called. That never seemed like such a challenge to me, but in an elevator between the first and fourth floor - well, now there was an opportunity for the Guinness Book of World Records. "Pussycat" managed to do that with great visuals of before and after the elevator ride. Memorable.

Patti had her own record. Between the first and third floor in a hotel in Singapore, actually; ancient, slow pre-WW2 elevators still have attributes. Yes, I digress.

In the end of our cash hunt she developed a much expected panic attack.

"What if we have missed some? We'll sell the house (she meant, "I" will sell the house) and walk away and someone else will have what we missed!"

Suddenly it had become *my* responsibility to locate every last dime of stashed loot which she had hidden under Andy's nose for five years. For his part, Andy had a special safe inside his walk-in office vault where he kept his own tax free cash. Including the money, as it would turn out, which he had 'skimmed' out from under her nose at trade shows because when you got right down to it, she was his 25-75 partner, not 50-50. And this was symbolic of their relationship from day one.

Having 'unreported income' was only part of the challenging game

they had played. Stashing it was another part leading in this case to a third challenge - finding it years later!

So one night we did a survey room by room, locating every possible 'alternate location' where Patti might have pried off a floor panel board, attacked a wall moulding with a screwdriver, unscrewed a light fixture or snapped off a light switch covering to shove inside, behind or under, something of value. The night turned into a day and a half, possibly extended because of the close working conditions and the 'one foot danger zone' that persisted.

$142,000 in cash in the end. Patti never did accept that we found it all. If someone at 10139 Apache Road in Richmond happens to be reading this, I'd suggest they initially attack the ground floor hallway closet in the center of the house with crowbars and skill saws. I never did understand why she was so reluctant to let me do the same because it looked like the perfect spot to hide ten thou or so to me.

On November 16, 1985, Hurricane Kate aligned itself with the northern Turks & Caicos Islands, slamming into Provo's eastern shore with sustained winds greater than 100 miles per hour. It happened that I was holding a seat on the last air plane leaving the island for several days and by coincidence cable business partner John Ramsey was on the same plane landing at Provo. The airline, in their infinite wisdom, neglected to advise those deplaning on the island that the leading edge of a hurricane was buffeting the region and as the airport lay in a sheltered basin on Provo's western shore, John was totally unaware of the storm. Leaving the airport, Marshall Foiles, driving our WIV Chevrolet Blazer, topped a rise and the car was struck with 50 mile plus gales. John and partner Maggie, Marshall and wife Sherri would spend the next 24 hours cowering in considerable fear as pieces of satellite dishes, fencing, and club med's waste filled the air with debris. When it was all over, 22 of our 24 satellite dishes were out of commission, up to 25 feet in diameter, some repairable but most missing essential parts that had blown miles to the west. Insurance? Think again. Both the 'main house' and the 'annex' survived mostly intact but others were not so fortunate - some homes having walls torn off and in one small region of Provo, a hurricane spawned tornado levelled several homes. Electrical power was off for days - weeks for many - telephone lines severed, and our new cable TV plant construction set back months by the storm.

It all made for an interesting report in Coop's Satellite Digest with several dozen photos showing what happens to satellite dishes when the winds become that severe. The industry had been wrestling with a

tired debate whether 'solid dish antennas' were stronger than the light weight 'mesh' (perforated) versions; mesh manufacturers were convinced, after wind tunnel testing, their antennas would allow strong winds to 'blow through' the sizeable sail-like-surface areas and their antennas would survive. In fact, the two antennas that did survive unscathed were mesh (and from David Johnson's Paraclipse firm) which explained why David, accompanied by a Paraclipse engineer and a professional photographer, flew from California to Provo within days of the storm to inspect the damage and create photos which would grace Paraclipse advertising for the next several months. Other mesh antennas that formerly dotted our Grace Bay compound did not fare as well and for the first week or so after the storm hit, the only folks on the rescheduled inward bound flights were insurance adjusters, worried returning residents, or engineers and technicians from the satellite industry anxious to dissect the scrambled remains of the WIV Provo 'Dish Antenna Farm' while the evidence was still piled on the sand dunes.

Patti and I were amongst those to grab one of the first flights back onto the island. We somehow managed this without attracting unwanted speculation as to why, 'the wife of Andy Hatfield - sans Andy', was travelling to Provo and staying at the home of Bob Cooper. It would shortly become increasingly more difficult to cloak our relationship.

Out of respect to still-wife Susan, I called her to disclose that I was 'seeing Patti Hatfield'. Actually, she was relieved to hear that harboring as she did many positive thoughts about the lady from Virginia. "Will you marry?" she asked.

Then she revealed that from June (this being November) she had been 'seeing' an ex-school mate from her high school days in California. "Will you marry?" asked I. Neither of us had a satisfactory answer - we should have asked Patti who had it all figured out!

On October 29, 1985, SPACE's Rick Brown held what became the industry's 'going away party'. By some accounts, it cost the struggling trade association in excess of a quarter million dollars - which was perhaps $200,000 more than they had in the bank at the time. It went like this.

In October 1984, the US Congress had adopted new legislation proffered by the cable TV industry; the Cable Communications Policy Act of 1984. The new law made it legal for cable firms to merge into larger and larger combines, greatly reduced the influence of the FCC on cable operations, and made it possible for cable TV to invade the

sanctuary of the telephone firms - telephone by cable. Ultimately, it would also make it possible for cable firms to increase the rates they charged consumers.

Brown, with the aid of Senator Goldwater, Representatives Tauzin and Rose, was successful in getting some specific language tacked onto the cable bill that he believed favored home dish users. The bill recognised for the first time that owning a home dish was totally legal, that home dish owners were entitled to be served by cable programmers, thereby removing the grey stigma which had hung over the industry from the original FCC 1979 decision that eliminated individual dish by dish mandatory licensing.

Brown in January 1985 earned CSD's 'Man of the Year' award for his skills in making this happen, and from November 1984 through perhaps March 1985 the industry was lavish with its praise of his work and hungry to enjoy the fruits of 'being legal'. Looking back, Brown's success with Congress was the final straw that caused the cable industry to rally around their flag and declare all-out war on home dishes. 1985 was a disastrous year for those who survived drops of 25 to 50% in national sales and a rejuvenated cable industry 'foe' was clearly the cause of the consternation.

SPACE faced bankruptcy which fit because the industry as a whole was running in negatives. Brown, the lawyer, wanted one last fling at the golden ring and he and impresario Bob Behar (Hero Communications, Miami) laced together a plan that had all of the earmarks of 'going for broke'. They would hold a rally in downtown Washington, bring in thousands of satellite dealers and distributors (they hoped) and flood the front office of Congressmen and Senators with aggrieved constituents. This was a page out of the cable industry's decades-learned, 'book of dealing in the nation's capitol'.

Reference. Say you are a member of the retail grocery industry and the wholesalers to the retailers had covertly agreed to raise prices so high that consumers were crying foul. So thousands of retail grocers convene on the steps to Congress, listen to rousing speeches from their brethren, and then, 'mad as hell', storm the hallways of the elected representatives. Of course the media is on hand, there are 15 second sound bites in all evening newscasts and the consumers line-up to thank the grocers for their concern.

Substitute satellite dish dealers for grocery store owners, cable TV programmers for grocery wholesalers and dish owners for grocery consumers and you have a fair idea of where Brown was coming from.

Unfortunately, October 29th was just prior to the annual Christmas

break in DC, and by the time anyone got back to town early in 1986, the sound bites had ceased to echo. Anyplace. But with the assistance of Shaun Kenny's weekly TV show, large amounts of SPACE money spent on printing and mailings, and publicity placed in the industry's trade magazines, a group large enough to create havoc in sections of the capitol did appear at the carnival-like atmosphere created when several dozen dishes moved into a designated area, unfurled and put on 'public displays' of home dish TV for the curious, and, homeless who lived out of pushcarts under the shadow of the capitol. A few Congressmen even agreed to leave their office sanctuaries and walk through the imposing gauntlet of dishes but I had to notice those that did so had arranged for their local terrestrial TV stations to tape their visits, often talking on camera with dealers from their district. Congress is as Congress does; then, today, tomorrow. Tonight's sound bite is tomorrow's test pattern.

Bob Behar, with what he believed was an unlimited budget, arranged for the entire day's events to be televised, via satellite of course, so that home dish owners and those dealers unable to make the trip, could be seen celebrating what someone named, 'Earth Station Day'. A tent filled with sufficient TV production equipment to cover ABC Monday Night Football was set-up for the non-stop 12 hour TV dishathon, phone lines were installed allowing satellite viewers to call in and be on the air - it was non-stop Larry King before he was a CNN household word.

Behar had asked me to host 'some of the hours' and I readily agreed, being the natural 'ham' that I was (and possibly am still). Patti and I arranged our Provo-Florida-Virginia time schedule so that we spent the 24 hours prior to Earth Station Day in Richmond, a few hours drive south of the event. Everyone who had ever seen me on television, or in person, knew my Provo-gutter dress and personal appearance tradition. Open-toed sandals, short pants, an outrageous shirt that only a Haitian would proudly wear and hair that looked more blown than brushed. Nobody expected me to look different than this.

So it was to considerable levity and amusement when the car I rented to drive to Earth Station Day pulled into the designated parking lot and out I stepped in a grey flannel suit, white shirt, tie, real shoes and very skilfully coiffured hair. Topped off with new wire-rimmed, fashionable glasses. Patti also attended but we thought better of our arriving together as the relationship was still very much hidden. She wore one of the outfits procured for the opening night CNN visit in London; it would be another year before she 'discovered' island slovenliness.

My attire became a side-show, a source for pointed barbs and as Patti would later relate to me, serious conjecture amongst the ladies attending.

Estrella Behar (Bob's wife) to Patti: "Look at Bob - some woman has gotten her hands on him - I wonder who it is?"

Patti's in total innocence response: "Whoever it is, she's done a good job. He cleans up pretty good!"

The day prior had been a busy one. A new suit to be rush-fitted, Patti's long debate with herself over the 'correct' shirt, tie and shoes - and two serious hours in a beauty shop that will linger with me until I die. That night she imposed the 'no sex rule' which apparently she had learned from the professional football players. In her mind, 'being at peak form' included no recent sexual encounters! Years later I would work out this rule only applied to the male gender; women, Patti at least, was never at peak form unless she had just had sex. Preferably within the last hour.

Months after ESD it would be revealed staging the gathering had cost SPACE as much as $300,000, of which they would be 'a few hundred thou' shy when it came time to pay the bills. But by February 1986, when this information became public, only a skeleton remained of the trade association and the industry was rapidly turning into a grave yard. This meteor, showing such great promise as late as November 1984, had in 14 months imploded leaving behind a wake of burnt carcasses suspended in a no man's land between Chapter 11 and outright padlocked doors by order of a local court or sheriff. The baby I had nurtured from 1978's conception as a marketing memo created for Dana Atchley at Microwave Associates was ready for burial. C-band TVRO was for all purposes gone, like the CB craze and hula hoop of the 70s. In America, the only thing faster than a meteoric rise to fame and fortune was the bottomless pit descent to oblivion.

Six months of anxiety

Patti did her best to divert me from depression. She more than most understood the close kinship I felt for the entire industry, warts - Rick Brown, and all. Doug Brown had made a mistake acquiring CSD and by November 1985 I intuitively knew he would not honor his agreement to pay me an additional sum of $150,000 in January, as our carefully constructed contract would demand. And the $15,000 per month to 'mentor' CSD under his publishing company's direction was in equal jeopardy. I sought legal advice from personal attorney Clare Skatfeld on Provo and he decided I ('we' in the communal sense) could probably continue collecting the monthly stipend for the balance of the 12 months but if Doug elected to default on the second payment for CSD proper I, short of taking him to court in his home state of North Carolina, should plan on 'getting the magazine back'.

Patti placed her Richmond home on the market - hidden cash stash and all - and began the process of slowly introducing husband Andy to the likelihood she would early in 1986 no longer be married to him. Andy was furious. He perhaps had a level of admiration for what I had done - including making it possible for him to become a multi-multi millionaire - but when push came to shove, he was extremely cautious about my entering Patti's life. Not because he had any affection for his wife, but rather because he knew that in dealing with her to assume the 25% of Avcom she owned, he would one level back actually be dealing with me.

"Watch out for Cooper - he is street smart!" was his frequently repeated warning. Interpretation? Andy feared that I would be urging Patti to adopt a tough negotiating posture over the very real matter of

Andy acquiring from Patti her 25% interest in the company. He was dead right. It took me only one visit with Patti to the Avcom facility to work out how Andy manipulated every action there. Some entrepreneurs manage - Andy manipulated. An example. His top sales person was a lady named Linda who by late in 1985 had moved from Virginia to Louisiana. Linda was responsible for creating sales for Avcom products; her history with Avcom included being available for Andy's midnight forays into sexual satisfaction even when he was still living with Patti. Linda was, generously, a 'sex slave' who also happened to have some sales skills. It was all a part of Andy's belief that everyone he dealt with owed him 75% of each deal; 50-50 was not in his vocabulary. Sex was the extra 25% with Linda.

Three activities motivated the man. Money or the acquisition of tangible items which represented money, sex in all of its various forms, and his Panda Bear collection. A visit to his inner sanctum office buried well away from the normal Avcom traffic flow pattern was an eye-opener. How many executive offices have you visited where life size (stuffed) Panda Bears occupied ever niche and corner? How the Panda Bears related to making money, or, sex, I leave to your imagination. Patti would relate how frequently she found him curled up in a prone position on the floor of his generous office wrapped around a stuffed Panda late at night, when he might have been at home with her in bed. Could she claim 'alienation of affection' in a divorce suit charging a Panda Bear as being, 'the other party?' He was not amused when 'street smart Coop' dropped this into a conversation one day after his attempt to reduce Patti's 25% share to something much smaller. What he sought to do was to acquire back Patti's stock for as little cash as possible, of course.

In fact Andy had realised very early in 1985 that his days as a supplier of $2,500 commercial end satellite receivers was rapidly closing. And to pre-empt this drop in sales, he had burned the midnight oil (which was when he was most creative and most sexually active) creating an entirely new product line of satellite test equipment; a device known as a 'Spectrum Analyser'. The $2,500 region analysers would ultimately keep the company rolling for another decade, although in 1985 they were essentially untried in the market place. What he needed was some skilful assistance in introducing the analyser and in me he believed he saw a way for this to happen.

Down on Provo I had been producing special corporate video sales tapes for several years; Uniden, for example, had spent several tens of thousands of dollars to engage me and West Indies Video to create a

videotape series which would become a major component in their dealer training program. Andy decided that I should create a similar 'dealer-user training tape' for his first line of analysers. So he cleverly first tried to reduce the amount of value attached to Patti's shares crying 'poor sales/industry downturn' and then he bounced back requesting a one-hour Avcom videotape which he suggested would partially make up for the smaller amount of money he was willing to pay Patti for her stock.

What Patti wanted out of Avcom, when giving up her 25% interest, was $500,000. In a company turning between $4,000,000 and $5,000,000 a year with a 40% profit margin, her appraisal was not unreasonable. Andy's reaction was to grab his Panda Bear and suck its paw - a child with a thumb in his mouth. His counter offer was $100,000 and that he insisted would be paid with Avcom inventory of satellite receivers; those which he had built and with an industry downturn, now held unsold on warehouse shelving.

In the midst of all of this a deadlock developed. For several weeks, Patti showed up at work (and as the controller wrote herself regular payroll checks) but the two of them found creative ways to work in the same building while never actually meeting or talking. Christmas was coming, Patti and I would be on Provo with Tasha, Kevin and my-first marriage children Stephanie and Britt; she desperately wanted something signed, sealed and done before the holidays. Andy knew this and took advantage of her growing anxiety by reducing his $100,000 offer terms every second or third day.

"If I sit here long enough, I will either put cyanide into his soft drink or take it myself. We need to do something to move him off of dead center." Patti was caving in and Andy knew it.

Street smart? OK - now it was time to fulfil his descriptive term of me.

"Who in the industry does Andy most dislike - someone he absolutely cannot stand?" asked I.

Patti thought about the question, true to form making a list on a legal pad, moving names around until she finally had a list. It began at the top with James Rothbarth, the St Louis fellow who introduced the Luxor receivers from Sweden to the American market. Rothbarth, the man only Rick Brown really got along with, was just weird enough to suit my plan. I headed for the telephone and called St Louis.

"Jim, Bob Cooper here. I need a favor. I want you to call Andy Hatfield and tell him you are negotiating with his wife Patti to buy her 25% interest in Avcom. Make it sound really serious - you are

calling him as a courtesy and you expect to close the deal next week. You want him to know how much you look forward to being on the Board of Directors and helping him turn Avcom into a first rate company, again."

Of course I had to explain what this was all about. Rothbarth in the end agreed to do precisely what I was asking, but let me know, "You will owe me one - for this." It was, of course, what street-smart people did every day of the week.

Within an hour Patti and I, at her now sale-pending home in Richmond, received a call from Andy's corporate lawyer. "I have been instructed to draw up papers meeting your demanded sell-out price. They will be ready for you to sign one week from today. But, I am sending a messenger over with a one paragraph interim agreement in which you must sign for this to go ahead. It says you will immediately stop all sale negotiations with anyone else."

Patti was ecstatic. I was glad neither of us were Panda Bears in Andy's office - they would take a real beating that night.

"He's not given up, he has merely given in" I cautioned. "Let's hold off celebrating until we read the language of the agreement his attorney is drafting." Time would prove my caveat spot-on.

Ultimately, Patti would be forced to settle for a six figure amount well short of the $500,000 we both believed fair and much of that was 'paid' to her in the form of Avcom branded product which quite honestly was past its 'use-by' date. Andy wanted to ship down to the CSD office receivers which he priced at $2,500 each when in fact they would command less than $1,000 each in early 1986. Moreover, the receivers cost him under $250 each to make so he was getting out of the deal by paying Patti ten cents on the dollar using equipment which she already owned a quarter of! It was up to us to try to find a market for these receivers using CSD and Shaun's Boresight television program.

There was one incident which totally typifies the deal. Inside of Andy's walk-in safe was a massive glass jar that perhaps at one point in its life held 50 pounds of raw pickles or Italian olives. It was now overflowing with small change - pennies to fifty cent pieces. Thousands and thousands of coins.

Patti wanted that jar, a symbol of her reluctance to allow Andy to get away with anything. She and he, for nearly a decade, had been throwing loose change into the jar. Andy's first position was that it was in 'his safe' and therefore belonged to him. But Patti was adamant and for 48 hours nobody would sign the final draft of the dissolution agreement until the glass jar was resolved.

I called Rothbarth again and suggested he telephone Andy to ask if, "circumstances had changed - could he pursue Patti's stock once again?" Andy's response to the unwelcome Rothbarth call was to counter Patti with a 75-25 division of the glass jar's contents. It was all very petty coming from a man with million dollar homes in California, Virginia and Florida, and, a two engine private aircraft nestled in a heated hanger in Richmond with a Trade-a-Plane street value exceeding a million dollars.

Patti's livid response was unprintable. In the end, she and Andy as their last 'official conjugal act' sat down at a large cafeteria table at Avcom, and meticulously spent the better part of a full day removing one coin each in alternate turns until the jar was empty. It was perhaps the most painful $1,482.31 each of them had 'earned' in more than a decade.

Symbolism. The Hatfield's distribution of their wealth, as one-sided as it ultimately turned out to be, was painfully reflective of the state of the industry. But there was an undercurrent hidden below the surface which I recognised as having the potential of turning things around, again. Alli Lake had pointed it out originally. Videocipher was hackable; the 'algorithm' chosen by M-A Com's San Diego subsidiary Linkabit was flawed. It would be nearly a year from Alli's original report before I worked out how badly flawed.

The history of 'hacking' encrypted satellite signals had begun with folks in Canada reworking the CBC selected Oak Orion system in the early 80s. In the first attempts at making encrypted TV signals hack-proof, designers adopted a 'lock and key' approach. The encrypted transmission was the lock and built into each receiver was a key. But initially technology only allowed them to have one lock and one key - so every receiver put into use had a common key. If someone fabricated a substitute key that worked, and could duplicate the key again (and again), any receiver could be modified to receive the encrypted transmission. It took Canadians, angry at the CBC for encrypting Saturday Night Hockey, only a few months to create a substitute key.

In the next advance, the designers changed to individual keys for each receiver. One master lock with a 'unique tumbler' for each receiver location. Now you had to be able to create a hack product which cycled through the tumbler options until you found the right tumbler to complete the unlocking process. They called this system 'addressable' because each authorised receiver has its own one-off 'address' - tumbler sequence. The Canadians were quick to unravel that one as well. First they dissected a completely legal, authorised receiver to discover the

tumbler sequence. Then they replicated that sequence in a new, unrelated receiver. As long as the original receiver continued to be 'addressed' by the information stream, any replications using the same tumbler information would also work. And this technique was called 'cloning'.

It was at this point that M-A Com came along with their LinkAbit technology. As originally demonstrated, it was probably secure enough to avoid hacking for a period of at least five years. But, as originally demonstrated, the individual decoders using 1985 technology were going to cost at least $15,000 each. Far too expensive for home dish systems that sold complete for under $2,000, and in fact too expensive for even HBO's plan to roll out scrambling for their cable affiliates as well. M-A Com nee LinkAbit had created the perfect (for the era) scrambling system - only nobody could afford it. Which brings us back to Mad Man Muntz and his passion for reducing product cost, now adopted by M-A Com for Videocipher.

From 1983 into 1984, M-A Com spent millions of dollars trying to refine the secure system. When it became painfully obvious this was not going to happen with available technology, they returned to client HBO and proposed a new approach. The video or picture would be 'soft encoded' - meaning a clever lad such as Alli Lake could (and shortly, would) 'patch around' the video. The 'real' scrambling would be with the sound since very few people have skills as lip readers and even if you might have that ability, Frank Sinatra singing from a Las Vegas stage loses a great deal when there is no musical accompaniment.

Encryption becomes progressively more complex (read: costly) when the content becomes 'fat'. A TV picture is 'fat' with information, and by comparison the sound (audio) is 'thin'. If M-A Com only did 'hard encryption' on the sound, huge dollar savings would result. HBO was not so sure the trade was acceptable. Setting aside the obvious 'theft' of their programming going on which resulted in lost revenues totalling millions of dollars per month, the real pressure on them was coming from Hollywood. HBO (Showtime, and other satellite movie services) were beginning to have a significant impact on movie investor bottom lines. Hollywood mentality from the 20s had always been 'the gate must be counted' and at all times secure. Folks such as the Joseph Kennedy family had made huge fortunes in the movie business, investing in the raw cost of producing a 'flick' hopeful always the finished product would earn millions (and millions). Some of course did. This created a mind set at the top of Hollywood production houses that translated down the command line to theatre operators - 'protect the gate'. Sending recent-release movies via satellite to cable headends,

while home dish systems 'siphoned off' the content without paying, was a growing concern creating paranoia amongst Hollywood investors. And like the Kennedy family, many of these 'silent investors' had political clout as a result of their theatre-earned riches.

HBO needed the product to survive. If movie moguls were threatening to withhold movies until the satellite transmissions were 'secure', HBO had no choice. They had to scramble. The 'soft encryption' of the video or image part was a stumbling block, no matter how secure the audio or sound might be. HBO was caught between a M-A Com design that cost $15,000 per descrambler with totally secure video and audio, and the reality that very few of their cable affiliates would or could agree to that kind of fee for each descrambler required. Moreover, if the cable industry was going to insist that *all* satellite programming channels - even 'The Weather Channel' - encrypt, $15,000 or even $1,500 decoders were obviously out of the question. How much was having the 'Weather Channel' on your cable system worth? Certainly not $15,000 capital cost.

HBO put on its sales shoes. It needed Hollywood to 'sign off' on the lower cost M-A Com system before it proceeded to launch the system. It was not an easy sell, and Coop's Satellite Digest reports advising the video portion 'has been broken' were read with intense interest in California. M-A Com and HBO were busy assuring the studios video was 'useless without the sound' while Hollywood was quick to work out that if the video had been broken even before the official launch of Videocipher, 'was it not possible the audio would follow?'

It was at this point, late in 1985, that some very clever folks - would-be pirates in fact - began to contact me at CSD. The first were Canadians, years ahead of their American counterparts but only for a short while.

The law in Canada basically translated to this. American satellite TV signals were not intended for Canada, therefore they were neither fish nor fowl. If they were transmitted free-to-air (without scrambling), you could watch them. If they were transmitted in an encrypted system, you could still watch them (if you could decode the scrambling) because they were 'not protected' by the law, 'in Canada'. The bottom line was an open invitation for the development of a new industry in Canada: Piracy of encrypted American TV signals, which, once accomplished, could then be 'exported' back into the USA subject only to being nabbed by border patrol investigators. For the next 15+ years, Canadian piracy would be a thorn in the side of American satellite pay-TV services.

But we are ahead of the time line. Through the balance of 1985, HBO continued to send 'test encrypted transmissions' via satellite and ramped up to that eventual day when all 24 hours of their programming would be encoded. Closer to home, already certain that Doug Brown had no intention to pay me the second $150,000 installment for his purchase of CSD, I was torn between the 'demands' of Patti Burke Hatfield and where all of this might end up when Brown defaulted. Ms Burke and I were spending money like drunken sailors - trips hither and yon, an engagement ring which set me back $27,000 which she matched by purchasing as a 'gift' a south Florida Cigarette (racing boat) for my son Kevin (every 16 year old is of course entitled to his own 500 horse power 70 mile per hour racing boat). Patti was 'moving in', lock-stock and check book, even before I had a divorce from Susan.

THE PIRACY GANG

It was an unlikely collection of largely introverted individuals, the first wave of what would in the late 1990s turn into computer hackers marauding Internet. Home satellite dish sales dropped more than 50% during December 1985, reference 1984, and hard on the tail came massive cancellations of all unnecessary spending by the firms who prayed it would turn around. As much as the majority of the industry disliked every aspect of the M-A Com involvement in HBO's scrambling plan, when you are faced with two options - doing business with the devil or going out of business - the devil is the easy choice.

But there were malcontents, folks who did not believe in the old adage, 'if rape is inevitable, relax and enjoy it'. One of them was a part-time satellite system installer near Orlando, Florida named John MacDougall. He had been full-time, making a living if not yet driving a Corvette. When sales slumped, he knew who caused it; HBO. To make ends meet, he took a weekend double shift position with a small satellite uplinking station in Central Florida, a low stress, boring job watching lights flash and meter movements bounce.

Weekend after weekend John thought about what was happening to 'his industry', how one programmer driven by the resources of Time, Inc., was slowly but without letup grinding his world into dust. A plan was forming in his mind. His uplink, transferring a terrestrial TV channel to satellite, shut down before midnight on Saturdays - it was a decades old habit for the TV broadcasters - Sunday morning maintenance. And this left the uplink station unused, for a few hours.

The plan. To redirect 'his' uplink to the same satellite used by HBO, then to adjust his uplink transmitter so it would be on the same satel-

lite channel as HBO. Finally, to rotate around in his swivel chair and selecting a character generator used for emergency on screen text messages, to type an announcement:

"Goodevening HBO
from Captain Midnight
$12.95/Month?
NO WAY!
(Showtime/Movie Channel Beware!)"

The April 27 'attack' was so easily accomplished and attracted so much attention that panic rolled through the satellite and industries. John's technique was to watch HBO as he turned on the clandestine transmitter and then slowly, incrementally, increase the power of his own transmitter until magically HBO faded from the screen and in its place was the character generated 'warning'. HBO had their own transmitter operator watching as well - a part of his duties. When he saw what was happening, instinctively he reached for his own power level control and cranked up. Briefly, the Florida interloper disappeared. Briefly. Then John cranked some more and to HBO's surprise, they ran out of reserve power before the interloper. It all took about 8 minutes; the repercussions would last more than 8 years.

Network newscasts, Time Magazine and a myriad of others reported the incident. The FBI was called in, and the big surprise was that it took authorities more than 3 weeks to pin down John's weekend stint in central Florida as the prime suspect. Predictably, the FCC rushed through new regulations making it a Federal crime to interrupt a satellite transmission and attached $50,000 and larger fines to being caught.

It happened that many people caught the incident on videotape (a side effect of already taping the HBO Saturday Night movie) and photos of the on-screen warning quickly appeared within network and other newscasts. Not being a large fan of HBO, I missed the actual attack but quickly spotted important 'clues' in the photos broadcast showing the warning. In fact, it took about 30 seconds for me to recreate the exact same message with the same type font, letter spacing and edge-of-letter 'flaws' in my WIV control room. Character text machines are very much like individuals - they leave unique 'finger prints', as a minimum, to a particular brand and model of keyboard. And more often, unique to a specific machine.

Mostly to amuse myself I called a contact at HBO and asked, "So how is the investigation proceeding?" The answer was they were

compiling a list of all uplink stations in the country and would when finished begin a station by station check using FBI resources.

"You can shortcut that" suggested I. "Have your video production folks take a close look at the text including the font and in particular the ragged edges on the first character on each line."

"What will that tell us?" he asked.

"The make, model and perhaps ultimately the serial number of the character generator used" I responded.

Some months later I would regret being such a smart ass and 'helping the enemy'. That was after they caught up with John MacDougall, making his life very unpleasant for six months, and he had become a cause celebe - an antichrist breed of hero - in the eyes of the stragglers still able to survive in a home dish industry which HBO had bulldozed into oblivion.

John was an abstract, the opposite of those who wished HBO (and partners) the same ill wind but who believed the pathway to success was through dismantling computer code, not firing salvos at their satellite. John was not dangerous, others would be a significant threat to the integrity of the M-A Videocipher system.

HBO pulled the hammer on January 15, 1986. A home dish owner wishing to continue receiving HBO and Cinemax could subscribe to either or both services ($12.95), provided they already owned a M-A Com H1 or T1 receiver, and, could also source the Videocipher plug-in module required. And - be willing to spend something greater than $400 for the module and a service call to get it all working. There was not much of an initial queue except in Canada where folks were crossing the border, creating a 'temporary' USA address, grabbing the equipment and fleeing back north to begin the dissection activity. The Canadians were deadly serious about busting the system and dozens of 'cell groups' formed to pool technology and skills towards that end. They felt very comfortable with this activity because Canadian law did not recognise US originated satellite signals as 'legal tender' - they simply did not exist as far as Canada was concerned. In Canada you could do anything you wished to those services and as long as they were not plugged into Canadian cable TV systems, no Canadian law would be abridged.

In the states the reaction was no less fervent but far removed from the surface, essentially being underground. Alli Lake's original 1985 discovery that the Videocipher video (picture) encryption was quite straight forward to decrypt was followed by a series of 'products' which made no (or few) claims for attacking the audio/sound. "Watch HBO"

the advertisements read without more than a fine print disclaimer that 'sound not currently available'. People wanted to believe that if the picture had been 'beaten the sound should not be far behind' - a typical optimistic American view of life ("We can send men to the moon; we can 'break' this!"). January 1986 was 'black Friday' extended to a full month, spilling over into February and then March. SPACE had gone for broke and now was. Firms such as Uniden had bet millions of dollars on C-band being a viable business opportunity but at some point their manufacturing resources would have to accept any further growth in C-band was a business illusion. Uniden depended upon satellite distributors to take their product for resale to dealers and in most cases was extending credit to distributors. Multiply this by Paraclipse antennas, various brands of motor drives, LNBs and cable and you had a nation-wide financial disaster. Nobody had money to pay their bills and sales were plummeting even further on the heels of a massive HBO 'public education campaign' engineered by the same Ed Horowitz that turned Canada inside out a year earlier ("The skies are going dark"). Orbit, the Idaho produced satellite programming guide, lost 75% of its advertising pages (coincidentally down from 100 to 25) in one month and a simplistic black and white announcement from national distributor Satellite Earth Stations East Inc. appearing in CSD for March 1986 reflected on the times:

"You will notice a change in our advertising for the next couple of months. The money that we will save by changing to black and white will be put back into an advertising and public relations campaign geared toward the consumers. Advertising to you helps our business, but advertising *for* you will help your business. Be positive. We, as an industry, can and will make it through this. Because you are there, we are here. We will be here tomorrow. We will help you be here tomorrow."

Sadly, it was not to be.

"I've studied Alli's notes" he began, "and I think that a well managed direct attack on the audio can bring results". I had taken Alli Lake's private notes regarding everything he had learned about Videocipher and made perhaps a dozen copies which were carefully distributed to an equal number of folks whom I knew to be working on the 'Videocipher problem'. The fellow telling me this on the phone was Robert M. Richardson, someone I had known from 1957 or so. Bob was a ham radio operator (W4UCH, when as a pilot for United Airlines he was at home in Virginia) and had special skills when dealing with either of two subjects that 99.9% of us cannot even spell correctly:

Microwave technology, and the important one in this situation, computer coding. Retired as a pilot, he lived in the idyllic western New York community of Chautauqua, on the lake of the same name. It would be difficult to select a spot more 'out of the loop' in the mid 1980s without moving to extreme northern Vermont.

Bob was a Cooper-fan from the CATJ days, had jumped in with both feet and a soldering iron when the Microwave Associates low-cost Gunnplexer microwave was announced and subsequently created a 'Gunnplexer Cookbook' manual built around dozens of circuits he created on his workshop bench turning the tiny microwave unit into a valuable communications tool. The book sold in the thousands and anyone who wanted to know and understand low-cost microwave technology had a dog eared, frayed copy on their workbench, usually punctuated by numerous burn spots where their soldering iron had fallen onto the open pages.

More important, he was a self taught master of the earliest Radio Shack and other home computers and possessed a very structured mind. To him, 'decoding Videocipher' was simply a matter of searching for the correct 'key' in the computer data stream that controlled individual receivers.

"I propose that a small, tightly knit group of skilled people be formed and under my direction we will systematically take apart the Videocipher data stream until we have isolated the keys."

All of this presented me with a problem not made any easier by Doug Brown's totally anticipated failure to hand over the second (and last) $150,000 payment for CSD. Two weeks after HBO turned on full time scrambling, Patti and I were married in the beach side veranda of my home on Grace Bay, Provo. It was a very private event, punctuated with last minute attempts by wife Susan to delay our divorce in Florida knowing that a date had been set for the nuptials. Susan of course was after money - more money - ostensibly for the children Kevin and Tasha. It would be years later when I would discover she was retaining half of what I sent each month as a 'charge' to them for her providing them with a roof over their heads and food. And Patti had decided she personally wanted to pay for a honeymoon that would include stops in Singapore, Hong Kong, China, Australia, New Zealand and Tahiti. Doug Brown wanted to not only not pay the last half of the agreed amount for the magazine, he also wanted me to take back CSD at that point in time - days after HBO began full time scrambling.

Between HBO and Susan and Patti and folks like Richardson, it was a very stressful two weeks. Brown finally agreed, in exchange for

my not pressing him for the second CSD payment, to continue a smaller monthly stipend for which I would continue being the defacto CSD creator - until August 1986 when back from our extended honeymoon, Patti and I would regain full control of a much depleted publication.

"I suggest this be done as a research project with full accountability to the entire industry" Richardson continued. "Full publicity in CSD, full coverage on Boresight. That way we cannot be accused of being underground pirates and we might even get some funding along the way. Nobody has ever attempted to reverse-engineer an encryption system before - I think it will be quite a challenge and a hell of a lot of fun!" Richardson was the perfect 'engineer' which as Tay Howard had once observed, "tackle a challenge because it is a challenge".

What you are about to learn is how this worked. Nobody has ever *completely* revealed the steps that led to the defeat of Videocipher previously and there will be names, dates and places in what follows which some (in frightened self-defense) will deny. I was there, in person, and I saw it happen as it is about to be described. Most of the individuals to be named have disappeared from my personal radar 15 or more years ago. That one or more of these individuals might today be an important, even self-righteous, 'suited individual', of some importance, is a risk they took in 1986 - 1987 by becoming involved in the Great Videocipher Hacking Game.

DESUG

Shaun Kenny was a totally unpredictable, always dependable maverick that could have only developed in America. When Videocipher graduated to unstoppable, Shaun launched a segment on his weekly Boresight program called, 'Yellow Rain'. In this 3 to 5 minute piece Shaun took a M-A Com H1 or T1 receiver into a public men's room, placed it as best it would fit into a wall mounted urinal, and then while the camera focused first on his head and then on a yellow stream of piss, described the latest anti-M-A Com field reports for the most recent week. The receiver was of course soaked in the process and Shaun encouraged viewers to send him their T1 and H1 receivers for the 'Yellow Rain Ritual'. People who were so angry at M-A Com that they wanted nothing to do with the firm or its products flooded Shaun with receivers which he in turn flooded one at a time by urinating on them, camera running.

It was hilarious television because Shaun seldom retained enough pee to last through his entire monologue and he would then ask for 'volunteers' (people who wandered into the same public toilet unaware they were video taping inside) to 'join the queue'.

"You want me to do - what???" was the usual reaction from the shocked civilian suddenly thrust into a videotaping exercise.

"Piss on it. Here - stand next to me and pee right there on the M-A Com label!"

M-A Com was of course livid. So much so that they attempted to chase Boresight off of weekly television. And so began a 'catch me if you can' game between Shaun Kenney + Boresight and the powers-that-be in the American cable TV industry.

When you broadcast only an hour or two per week on satellite, it is called 'occasional use'. At any given moment in time approximately half of the satellite transponders in orbit were not in 24 hour use so normally it was a buyer's market - you needed an hour on Thursday night and for a fee (typically over $1,000) you had a selection of several dozen transponders on a half dozen satellites. Shaun was mindful that some satellites had stronger signals, were more easily 'found' by someone with a motorised dish, and attempted to keep his programming on one of these. An aside, the same hour on satellite in 2005 costs as little as $40!

First the cable industry put pressure on the satellite operators - "Don't sell time to Boresight". Then M-A Com and others attempted to coerce the satellite uplink operators not to accept Shaun's program for weekly broadcast. Throughout much of 1986, Boresight played musical transponders, hopping about every few weeks to stay ahead of the cable folks who were doing their best to shut down his transmission options. All of which made his fans more loyal than ever because they now had 'proof' that anything and everything to do with 'free speech and home satellite TV' was under attack.

Shaun's programming became ever more outrageous. He took each attack on himself and the industry personally, minced no words in his on-air editorials and between January and June damned just about everyone in and out of the industry at least one time. His advertising support, like that for Coop's Satellite Digest and all other publications, went into a nose dive from which there was no recovery. Shaun's dedication to Boresight was a passion, so intense that ultimately it would take his life prematurely. Remember the movie with the quotable line, "I am mad as hell and not going to take it anymore!"? That was Shaun, right up to his untimely death.

With very little advertising money available, and Boresight creating Tonsonomi size waves each week, finding money to produce the program and get it on the air became a serious challenge. Some people, me included, wrote Shaun donation checks. But he was creative and decided that his show should become a giant nation-wide 'yard sale' offering at bargain prices what by now had turned into mountains of unsold, factory new equipment. Individual dealers, distributors forced to the wall by unpaid supplier invoices, even manufacturers, jumped at the opportunity to have their 'surplus equipment' highlighted in Boresight advertising - in return for 'donating' back to the show a small percentage, 5% typically, of the selling price. Not everyone was honest of course, Shaun wanted nothing to do with warehousing and shipping

equipment - he barely had time to 'pee' these days anyhow and did not need another physical chore. But enough sent him their 5% 'fees' to keep the show on the air and actually expand the show to 90 minutes duration.

Which firm had what for sale, and the price they were asking, quickly became a weekly barometer of the true state of the industry, anxiously monitored by everyone left standing after the HBO attack. To that Shaun now added some questionable (even today) promotions of his own. When the first kits appeared allowing someone to modify their receiver for HBO decrypted video (only), Boresight became a distributor for the products. That of course brought some legal types into the fray, citing various federal statutes (such as something known as Section 605 of the 1934 Communications Act) and rattling sabres threatening to charge Shaun and anyone associated with Boresight with violation of law.

Through all of this Shaun's *real* livelihood continued - he operated a New Jersey firm that sold and installed satellite dish systems. And because of his television popularity, he was at least in his region famous (or infamous, depending upon whom you asked). So while a largely volunteer crew assembled Boresight's 60 or 90 minutes each week, Shaun labored on some customer's dangerously pitched slate roof installing or repairing a 10 or 12 foot monster dish in a blowing gale or snow storm. He was a man possessed.

If Shaun was outrageous, his would-be competitors were unprincipled opportunists. Foremost of these was a man from Utah named Keith Lamonica who, unable to afford a full 'television' channel, was somehow funding a sound-only ('radio') channel on satellite, nightly, which he called 'FM America', loosely modelled after Larry King's original national call-in radio show. Keith reminded me of radio station XERF which existed on the Mexico-USA border in the 40s and 50s by selling goat gland medications, "guaranteed to revive your sex life," and a wide variety of other non-FDA approved 'cures' to every possible human ailment. For $10 XERF would send you a magic salve or pill which they claimed would forever "restore your youthful vigor." Lamonica wanted $20 to "change the domination of satellite TV in favour of the common man," which of course would turn out to be him. He readily accepted advertising from more than a dozen firms who individually promised to 'restore your HBO programming' for various fees in the range of $50 but which in the final analysis either did nothing at all or in the best case performed an Alli Lake originated video-only recovery. Shaun was abrasive and direct; Lamonica was ill

tempered, had no fear of retribution, and saw the entire HBO scrambling and M-A Com intrusion into TVRO as an attack on his personal lifestyle. He was 'the Messiah' and for seven nights each week the radio oratories reflected this narrow view of his self perceived importance. Lamonica attracted a fringe group of people who, by listening to them on the telephone during his call-in shows, might have averaged a fourth grade education from a rural Arkansas or Mississippi school, existing on welfare checks from their respective states. I sat through one evening of his diatribe with a Vice President of Uniden who had come to visit me on Provo and at the end he looked at me dumbfounded and had a one line comment.

"If *this* is the marketplace for C-band dish systems, perhaps we are better getting out, *now*."

Shaun encouraged two-sided debate and raised serious questions that begged honest answers. Lamonica attacked everyone and anything without respect to truth - which in all probability he would not recognise if it had hit him over the head. In a sad reflection on the marketplace, the more serious the plight of suppliers became through 1986, the larger Lamonica's audience grew. He would one day 'sign off' and go away but not before his disciples by their vociferous disrespect for logic and truth did incredible damage to a reeling industry. Nearly twenty years after Lamonica disappeared from the satellite airwaves, I picture him as the man handing shovels to half-crazed zombies standing around a burial ceremony, egging them to pour dirt on an industry not officially dead but gasping for breath. If he was not paid 'under the table' by the cable TV industry to create this torment, they got a freebie from this 'Mormon gone astray'.

DESUG or the DES (digital encryption system) Users Group was first announced in CSD's April 1986 issue. The reaction, expected, was negative. I reported DESUG was a serious effort by skilled individuals to unravel the Videocipher encryption scheme, to "prove to the industry that this 'standard' is ill conceived and dangerous to our future." My logic, which few understood at the time, was as follows.

If Videocipher was a flawed system as DESUG believed, capable of 'piracy hacking', then every single T1 and H1 receiver equipped with a Videocipher module was a 'time bomb'. As sales for the module mounted, each one was a candidate for a 'piracy solution' which Richardson and others involved in DESUG assured me was, but, 'a matter of time'. An analogy?

You purchased a car which the manual insisted must be fuelled by gasoline, a petroleum derivative. You later discovered you could

put water in the tank and adding a small pill from a source in Canada, the car ran just fine. M-A Com and HBO, with their Videocipher technology, were - DESUG believed - running a con game. With a few modifications to the Videocipher board - yet to be worked out but promising - you could disassociate yourself from HBO and continue watching their programming without a monthly charge. I totally believed that when this happened - and that it would happen - the Videocipher system promulgated by M-A Com and HBO would unravel. In other words, they had set out to destroy the home C-band dish industry under false encryption pretences; their 'solution', if it proved to be a sham, would fit perfectly M-A Com's corporate history of 'double dealing'. Time, and not much time at that, would prove me correct.

As CSD reports through the first half of 1986 kept the industry updated, and I appeared on Boresight with 5 to 15 minute segments videotaped in my Provo studio, HBO began calling asking for a 'private audience'. Once they figured out my integrity was at risk if my forecast 'Videocipher solutions' did not occur, they became quite concerned on Madison Avenue.

"Can we pop down to Fort Lauderdale for a Sunday meeting?" asked my HBO contact. "We have some serious matters to discuss." I of course understood their 'G2' intelligence gathering intent and invited a fellow who was active in Videocipher hacking to be on hand; Ed Grotsky from Arizona satellite hardware manufacturer, Arunta Engineering. Ed had been working with several Canadian groups and he, like I, held onto the false hope that if HBO might be convinced Videocipher would sooner or later 'fall over', they might change their attitude about kicking home C-band dishes in the butt. All HBO had going for them was their encryption, and if it was compromised - well, all of the game rules would change.

Ed confided to me he had a 'secret' financial backer, a man he would (much) later identify as Irving Kahn, who had, in the 1950s, been the founder of the first multiple cable satellite system (MSO) operator under the TelePrompTer (TPT) brand. Kahn had gone to a federal penitentiary (in Florida) for a number of years after he lost a court case in which it had been proven to the jury's satisfaction he had 'brokered' (compromised) the city fathers in a sizeable community (Johnstown, Pennsylvania) when they were considering a cable television franchise application from his firm (see: 'TELEVISION - The technology that changed our lives" by this author). In a phrase, the court found he had, "paid the city fathers fees to vote for his company", versus a companion cable franchise from a challenger. Irving was the first cable

industry person to be tagged as a 'bad boy' although in the end none of this disturbed his multi-hundred-million dollar net worth. Because the cable industry had not supported his defense, he was understandably aggrieved by cable's leaders who shucked him like a rotten plum when the feds came calling. He saw in Ed Grotsky and Arunta an opportunity to 'plant a damaging seed' in the cable camp, to 'settle some old scores'. If Videocipher could be broken, he and Ed correctly envisioned chaos would follow. And as every entrepreneur knows, in chaos there are business opportunities.

It was a Sunday at my Fort Lauderdale apartment; five people including Ed and I.

"Is this DESUG thing real?" the HBO trio first queried. It was.

"How close are they to decoding the audio?" was the next question. I deferred to Ed who, while having been on a front cover of CSD in the past and a recognisable individual, had not been introduced by name. It was up to the HBO guys to tie his face and persona to the photos of him in CSD. I referred to him as a 'DESUG participant', without a name; a slight fabrication as Ed's Camadian group was largely outside the DESUG camp.

"We have audio. But it is not consistent. I figure another 30-90 days," Ed answered. He was very nervous, of course - I had considered placing a Long Ranger mask on his head before HBO x 3 arrived and we both decided that would be melodramatic.

HBO: "Is this American or Canadian?" A relevant question.

Ed: "Canadian. The leading guys are Canadian. America is woefully behind and no, they are not at this point sharing information."

The discussion dragged on for an hour. HBO was prying, Ed was willing to be open but not to disclose 'how' the audio recapture was being accomplished. For all we knew, M-A Com could make some slight modification on the digital audio stream and the Canadians would be back to square one.

"OK, so when it is completely broken - what will happen?" HBO pondered.

Ed: "Commercialisation. From out-of-USA sources, mod-chips (modification chips to be inserted into existing Videocipher modules) will be produced and they will be offered through commercial channels."

End of meeting. They had some of what they came after, Ed and I hoped we had impressed them with the basic weakness built into Videocipher and we might see some change in their marketing attitude as a result. We were optimistic, and, wrong. These were stubborn

guys, totally married to the Time, Inc. dictum that nothing was going to vary their business plan. I would eventually work out why this was so; the 'cable TV guys' once again. HBO was not going to 'screw around' with mother nature, nor, the cable big wigs.

In fact, DESUG and the Canadians had begun co-operating and Bob Richardson's American group had made major contributions to the northern effort. I can admit that now but at the time we wanted to distract the HBO group to Canada where they had no legal standing anyhow.

Reporting on DESUG in April 1986 in CSD, I penned:

"(as relates to the diatribe being broadcast nightly by Keith Lamonica) M-A Com has nothing to fear from the Keith Lamonica fans who raise their tightly clenched fists in defiance of the HBO flag. About the worst that might happen here is that some mentally unbalanced individual, dangerously close to the edge anyhow, could be driven past that point by the Lamonica diatribe and provoked to do something nasty to an executive from HBO or M-A Com. I'd suggest that the HBO and M-A Com executives hire some skilled bodyguards for the next few months just to prevent some crazy from gunning them down.

"M-A Com does have something to fear from their own people. At some point in the development of Videocipher, decisions about the design and coding approach were made which became compromise decisions. If, in making those decisions, for cost or other reasons, a M-A Com code designer left a tiny gap in the security of the system, sooner or later somebody will find it. When such a gap is discovered, then the security of the entire system will be breached. If I were at HBO, I'd want to know about such a gap right now, not three years from now when there might be 500,000 descramblers out there."

All encryption systems have a 'back door', an unauthorised 'hidden' way into the lock and key premise which the code writer inserts because he is unhappy with his employer, or, wishes to have a 'golden parachute' after he or she tires of putting up with an immediate superior, or simply 'because he (or she) could', to see if they might slip it by superiors. 'Back doors' are the 'pass key' of encryption systems - a few strokes on a key board and 'open sesame!' - the entire system unravels on the screen. It only takes a skilled programmer a few seconds to insert such an opening and as we will see here, that was in fact the ultimate undoing of the Videocipher system; somebody who didn't like their working conditions at LinkAbit and worked out an 'escape plan'. My 'warning' was several months in advance of it coming to fruition but once again,

my CSD editorial was spot on. Why? Because I knew and understood human nature.

Instinct told Bob Richardson and the DESUG group the 'back door' was there and Richardson did a superb job of 'educating' me on how computer programmers think. All DESUG had to do was locate the back door. CSD and Boresight kept on this 'story' from day one and HBO execs were amongst the most dedicated viewers of Shaun's weekly reports. We knew this, and DESUG planted a number of 'false trails' in Shaun's 'Yellow Rain' weekly reports to keep them off balance. It was a game of high intrigue from day one. Frankly, while I was still adjusting to Patti's 'demands', I was also enjoying the Videocipher challenge.

Jumping ahead, significantly, by mid summer 1986 DESUG had been 'Boresighted' and 'CSDed' extensively and Doug Brown in North Carolina was feeling more than a little nervous. His erstwhile 'managing editorial director', Chris Schultheiss, was buried in a back room unable to cope with my written text, totally unable to comprehend what was *really* happening here. I had the contacts, he got the corporate approved press releases and 'getting around Chris's editorial blue pencil' was not even a minor challenge. I knew the facts, Chris (and Doug) were so focused on staying alive in a declining advertising market that getting anything I wished into print was hardly an effort on my part. My biggest challenge was handling CSD for the six weeks when Patti and I were honeymoon-touring the Pacific and Asia, and not losing contact with the day to day events occurring in the scrambling world.

CSD for August 1987 featured me dressed against a cool wind on a single lane road east of Christchurch (South Island), New Zealand crouched down and jauntily pointing at a road sign announcing 'COOPTOWN', a cross-road Kiwi sheep camp. Patti and I had discovered the town (and sign) while on our extended honeymoon trip and years later H. Taylor Howard would send me a photo of himself crouched in front of the very same sign, 6,000 miles from his home in Calaveras County, California. CSD for August contained 36 pages, of which 8 were advertising. When I had handed the magazine to Doug Brown one year prior, 80+ pages and 35+ with advertising. It didn't get much worse than this - one might think. In fact it did. Brown, before giving it back, had transferred virtually all of the advertising remaining to his SatFACTS clone known as *Satellite Dealer* and then to tie a ribbon on any possible chance of my bringing CSD back alive, had gone to every subscriber and offered them a 'two years for one' early renewal plan; pay for one year and one-time only, receive two year's renewed

subscription. He, of course, kept all of the money from this plan which meant that we had effectively no renewals to bring in cash from August onward, no real advertising, and little hope of correcting either situation in an industry where $100 items were now selling for $9.95 on Boresight.

I had to admire his creativity but would never forgive him for the lack of business ethics that drove him to such underhanded tactics. Plus, by having had the CSD subscription rolls in his office for nearly a year, they had merged his own free-distribution Satellite Dealer lists with CSD and was quite blatantly advising the few advertisers left in business, 'You will reach a bigger market, *including* the full Coop's subscribers, through Satellite Dealer'. I crossed him off our Christmas card list. A decade later, in 1994, one evening while Gay and I had been out to dinner near our home in New Zealand, we returned to find a dirty grease stained T-shirt hanging from our basketball hoop. On it a terse message: "I literally owe you the shirt off my back - Doug Brown". Score: North Carolina state unscrupulous bad guys 3, New Zealand Kiwi good guys 0. It was unlikely our paths would cross in heaven.

Videocipher tumbled in August 1987. First there were two Canadians, working with Ed Grotsky and funded by his secret backer, who worked out that one particular 'chip' in the Videocipher module was responsible for authorising individual users. This chip, like many multiple-dozen metal leg miniature computer-world devices, had a memory capacity and when you 'got inside' and gained access to that memory, with new externally supplied instructions one could overwrite the HBO provided data stream created by M-A Com. Translation? First, take the chip out of the circuit board. Second, place the chip in a mock-up circuit board connected to a computer - even a Radio Shack TRS-80. Third, send new instructions to the chip erasing its previous memory and basically telling it - 'descramble all of the channels all of the time'.

Perfect video, perfect audio. Without a subscription.

The 'modification' of course had commercial value - knowledge of what to do and how to do it was initially very contained within a core group of not over four people; I was not one of those although I might have been first in the next subgroup: Those who knew that it could be done. There were immediate business plans to implement. Where would it be done? Who would do it? Could replacement chips be modified and then sent through the mails or by courier such that semiskilled satellite dealers could do the modification work in the field?

Grotsky advised me on a 'need to know' basis what he felt comfortable revealing, and shared the same information with Bob Richardson at DESUG. But because the work had in fact been done largely outside of DESUG, 'how to do it' and 'what to do' was not at this point passed on; the original 'break-through' had been all-Canadian..

There was a philosophical difference here about 'what to do next'. Richardson had always maintained that, "when it is broken, DESUG will verify that it works and then share the detail with anyone who wishes to know what to do." Grotsky, his Canadian partners and his secret backer, had more commercial plans - the would sell 'mod-chips' for between $200 and $300 each, typically to dealers who in turn after a quick training course would resell the chips installed in consumer T1, H1 receivers for perhaps $400. Or whatever the market might bear.

In mid-September, as a handful of folks in groups one (Grotsky + Canadians) and two (the DESUG folks) wrestled with step two, a once in a lifetime event took place at a ham radio Saturday meet in the state of Maryland. It happened this way and the odds of it happening as I relate are probably a million to one.

A DESUG participant named Steve Bepko, a computer engineer for NASA and highly respected in his profession, was attending a one-day 'ham radio meet' near his Maryland home. While there, as hams do, he was engaged with a small group of fellow hams in what is known in the hobby as an 'eyeball QSO'. A half dozen guys, standing on the pavement, chewing the fat. The subject was DESUG and Bepko was the primary speaker as the 'audience' was hams with a minor interest in satellite TV. His voice carried, being your basic sizeable fellow with a booming bass set of vocal cords, while unnoticed was another attendee standing off to the side. When the group broke up, and Bepko walked off, the listener approached him.

"You are interested in the Videocipher system?" he asked. Bepko acknowledged he was. The man addressing him was dressed like any ham radio operator one would expect to see at a similar event. Because most hams are so totally committed to their hobby, many are individually significantly antisocial. They dress poorly, their faces (as was true with this individual) had a multi-week beard, and because they communicate through a microphone or with their hand using Morse Code, seldom look you in the eye when speaking to or with you in person. 'Eye-ball QSOs' are not the norm in ham radio.

"Want the code?" asked the fellow.

Bepko, because he was an employed ham and one who had to follow a structured environment at NASA, was not prepared for the

question. Yes, hams spoke (and speak) in a shorthand, assuming you know all that went before.

"What code???"

"Videocipher," was the answer, and he reached into a dog-eared manila envelope pulling out nearly 100 accordian-fold connected sheets of closely spaced computer code.

Bepko, who spent his life writing and dissecting code, was paid big money to do this for NASA. It took him only seconds, having been assigned by DESUG's Richardson to analyse the code that individual members were extracting from the HBO satellite data stream, to realise that what was in the hands of the man before him - then quickly in his own hands - was precisely what he had already seen. But only in short spurts, maybe over time 10% of what the man was handing him, in one single pile.

"This is the real thing - yes?" he asked the fellow.

A faint smile through a untidy beard. Then the ham in Mr Greenjeans overalls turned and walked away leaving Bepko fingering HBO's worst nightmare; M-A Com's operating software routine for Videocipher. Logic suggested it could only have come from inside M-A Com, or perhaps but less likely, HBO. Logic could be wrong.

Bepko, a large man who could easily have been mistaken for a fullback or line backer playing professional football, immediately went to a telephone to report to Richardson. Had it happened - someone, somehow, had walked out of M-A Com with 'the code' and here it was, in the hands of DESUG? Just as I had predicted might happen; a disgruntled employee, perhaps even 'Mr Greenjeans' himself.

Now the second million to one shot. It happened by sheer coincidence that Patti and I were arriving in New Jersey at the home of satellite entrepreneur Peter Sutro at about the same moment 'Mr Greenjeans' was handing a partial ream of computer folded paper to Steve Bepko. Maryland was four or five hours by Turnpike from Sutro's northern New Jersey home. Steve Bepko would unexpectedly join me for dinner that night to share his 'find'. The telephones fairly buzzed (long before the introduction of credit card sized cell phones) for the next several hours. Bepko was working his way up the New Jersey Turnpike, balancing the treasure on his knee, stopping at Howard Johnson exits to use the telephone to describe his latest findings as he worked from page one to the end.

"I found the back door - it is amazing 'they' (meaning the folks at M-A Com, the managers who ultimately 'passed' on the code before it went into service) have not spotted it themselves." Perhaps not so

amazing. Steve was NASA's top data writer and trouble shooter, M-A Com unlikely had anyone of his skill level employed.

Another hour and another call.

"Perhaps I should turn around and go back home to implement this routine?"

By now he was halfway through the code pages and very anxious to prove it was the real thing - although he had almost no doubts it was as represented. It was that 'ham radio spirit' at work. We suggested not. 'Tomorrow is soon enough', we urged; "keep driving to us!"

Fortunately Sutro had two phone lines into his house. I was busy chasing Ed Grotsky on one line while we kept the primary line open for the next Bepko 'turnpike-report'. But first I felt it necessary to work out some details with Bob Richardson who could not be joining us for dinner (a disadvantage to living in rural western New York, six long drive hours from Sutro's home).

Me to Richardson:

"If this is the real thing - how do we deal with Grotsky's group? I believe they have perhaps half of this code worked out on their own, and if we trade them the full code for their closely held knowledge of how they inject code into chip U30, would that be a fair swap?"

Having the code was major but only Grotsky's group had focused on the challenge of extracting the chip, erasing its factory-installed memory without destroying the chip in the process, and, then reloading it with new data. Or, as would now be possible, acquiring a brand new factory fresh 'U30 chip' on the open market, load it straight from the Bepko-acquired program, and simply replace the original U30 in the M-A Com circuit board.

Sutro, not an active participant in DESUG, had other suggestions befitting his executive style mind and approach to business.

"How about going back to Home Box Office - to the top, and explaining what this could mean to them?" Peter was palsy-walsy with folks even higher up than I at HBO. "What we really want is a better approach to their present 'take no prisoners' approach to home dishes."

My answer would come from the only one in the close knit group who had grown up in cable TV and really understood the cable mind set; the John Sie mentality.

"HBO would already be doing it in a more friendly way if they had that choice. But the cable operators are not going to go backwards in time to where they are again losing subscribers to TVRO. All we do by explaining this to HBO is give them a head start on working out a new computer code and spare them the embarrassment of having

made such strong statements about the invincibility of Videocipher. They had a chance to deal with us - and they blew it." In retrospect, I had lost 'the faith'. 'Screw 'em' - they had their chance and passed on it.

Peter would persist in his conciliatory approach for several months and there would be at least two other efforts to do just that - 'negotiate an armistice' with HBO and pals.

Bepko's arrival was almost anti-climatic. Only Kenny Schaffer, who drove out from New York with his Russian-intriguing girl friend Marina to share a dinner with us, and oblivious to what was happening until he bounced through the door like Tigger of Winnie-the-Pooh fame, had the mental skills to scan the Bepko stack of computer print outs and understand what it really meant. To the balance of us, it was millions of meaningless garbled letters and numbers and we had to take Bepko's word and Schaffer's agreement that, "this is the real thing."

Ed Grotsky was not so sure, when I finally tracked him down in Saskatchewan.

"Suppose it is a phoney - how you got your hands on it is very far-fetched!" I suggested that for our discussion, at least until Bepko got back to Maryland to test it, he accept that it was real.

"How about a trade - the complete code for your skills and knowledge about U30?"

A long silence. Then, "I don't see what we get out of this. We may not have the complete code, and certainly locating the backdoor would be amusing, maybe even helpful later on, but for right now, we shipped our first dozen mod-chips today and are sitting on orders for over a thousand more at $300 each. So why do we need your code sheets?"

I would be on the telephone reporting back to Richardson as Bepko was walking through Sutro's kitchen door waving a sheath of dog eared computer paper.

Richardson. "$300k in orders. Wow!"

Me: "That would buy a truck load of new ham gear!"

Richardson: "Tempting. Yes indeed, tempting. But you know what? We went into this because morally we believed what M-A Com and HBO are doing is wrong; reprehensible. Dangling a bunch of cash in front of me doesn't change my attitude about right and wrong. And besides, Grotsky will have to live in Canada and travel around wearing a beard and carrying a false passport from now on. He will be a marked man." Richardson, a former highly placed executive with IT&T, was the 'Ivy League Man' right to the end.

Five months down the calendar, Richardson would stand on my

beach on Provo and shake Ed Grotsky's hand for the first time. Grotsky would be sporting full facial hair, carrying a Dominican Republic passport, and returning to the United States (when he chose to do so) by flying on up to seven air planes in a day-long bone weary circuitous route that included stops on three continents, rather than chancing a direct 90 minute flight to Miami. Richardson was spot on; the pathway of a 'pirate' was not going to be simple. But we are getting ahead of our time line, again.

Million to one number three. At this point, setting aside Marina Sutro, Patti Cooper and Marina Albee, five to seven people knew of the clandestine computer codes. Plus of course Mr Greenjeans - whoever and wherever he might be. Over dinner, prompted by several brilliant suggestions coming from Kenny Schaffer, a new plan evolved. First, who else needed-to-know about this? Shaun Kenny headed everyone's list but not one of us was comfortable with his ad-libbing on television, in a moment of anxiety, the full story.

Kenny: "I can just see him pissing on a H1 receiver and turning to the camera and spouting something like, 'OK M-A Com, you dirty dogs. Your code is broken and we've got your audio'!"

I had my own privately-held plan which had formulated after Bepko walked through Sutro's kitchen door and Richardson restated his preference that, "All the code be released to everyone, openly, just as we promised when DESUG was formed."

My 'plan' would perhaps be the most brazen and legally confronting thing I had ever done or would ever do. Midway through after-dinner liqueurs served by the socially-correct Sutros, I excused myself to chat with Richardson again.

"You recall how this industry started?"

Of course he did and began to recount everything done from 1976 onward until I stopped him right after reaching the infamous TV Guide article and CBS Evening News with Cronkite.

"Once DESUG releases this, on a mass scale, what happens to the industry?" I asked.

"Give or take 45 days, it splinters, falls apart, and HBO rushes back to M-A Com to create something they will call Videocipher II+ or similar. Everything Bepko has in code, all that Grotsky and friends are doing in Canada, can be patched with a modified version of Videocipher. At most, we hand them a year of hell, more likely six months, and then having corrected their first-release mistakes, it is back to square one and we start DESUG-II."

"Is it worth bothering with this, then?"

"I believe so. They need to be taken down a peg or two and this will cost then tens of millions of dollars to correct - perhaps much more. HBO will possibly be forced to replace each of the cable system decoders with new versions - that alone is going to be millions of dollars. But consider our plight and look at how they have decimated the home dish industry. Maybe we as an industry asked for this in our stupidity. Maybe SPACE was wrong - maybe not - in refusing to negotiate fair use agreements. But we are where we are, now, and either we go ahead with this and drop the bomb, or turn tail and disappear into the woodwork. I vote for the bomb."

And so it was decided, ultimately by Bob Richardson and myself, to 'drop the bomb'. All that remained was to create the most spectacular July 4th the industry had ever seen or would ever see again.

In retrospect, I fully expect to be severely criticised for what we did next; Bob and I.

Dropping the bomb

In tracing the creation and development of the 'home dish industry', most would agree the 'real launch' for the industry was Oklahoma City, Oklahoma; August 1979. That was the initial SPTS (Satellite Private Terminal Seminar); 500+ attendees, standing room only. It was my show, my plan, my publicising that made it happen. Now, the industry's *last* memorable event would be cast in the same mould; my plan, my responsibility. TVRO was 'my child' and if anyone was going to bury it, it had to be with my shovel.

A number of disjointed but related elements would go into this plan. It would be a 'show' to end all shows, guaranteed to accomplish the mission-statement that had driven Bob Richardson and DESUG from their initial overview appearing in CSD for April (1986). He wanted to uncloak Videocipher, and then share the secrets hidden in the code with anyone who wanted the information. For whatever purpose. Unlike Ed Grotsky, Richardson saw this as a humanitarian gesture, not a business opportunity.

It took me a few weeks, well into October, to verify that what I was planning could be accomplished over the coming 90 days. Basically, I was going to 'invite' as many as 350 people to Providenciales in the Turks & Caicos Islands where we would stage an open forum three day event designed to reveal everything anyone would ever want to know about 'busting Videocipher'.

United States law very clearly stated, under Section 605 of the 1934 Communications Act, that to 'trade in' methodology for breaking an encrypted transmission was unlawful. Furthermore, the DES military based encryption standard made it illegal to 'export' US encryption

technology offshore, which of course included the Turks and Caicos Islands.

My island attorney, Clare Skatfeld, a Canadian as it happened, was pressed into service to carefully review all of the relevant statutes on the books in the Turks & Caicos. Would we break any *local* laws if we had folks here from outside the country who would be taught US encryption technology; DES?

Would US citizens, myself included, be chargeable for breaking any US laws if we participated in such an event, offshore? Would US citizens attending such an event be risking more than the cost of the event when they returned home?

And there were the mechanics. Setting aside the lunacy of hauling down groups of 15 at a time using an Ed Hegner air plane, how would we transport hundreds of people from Florida (the most logical embarkation point) to Provo? And once there, where would they stay - how would they get around, be fed, and safely return home at the end?

Publicity. The most obvious place to promote such an event was of course CSD. But as we took weeks to put all of the answers together, it soon became apparent the best place of all would be Boresight's weekly TV show. Patti was assigned the 'lodging/eating/ground transportation' problem. She discovered that during the months of January and February (1987), we might if we spoke first and fast, manage a maximum of 100 beds at a time on the entire island - taking every available room that was not already pre booked. That number would be pivotal to the plan that followed.

Transportation. By adding up the numbers for lodging, food, ground transportation, and a round trip air fare from Fort Lauderdale or Miami to Provo on a chartered plane, it began to look as if we might require a 100-200 seat 727, three times - all of this assuming that many people decided to come and 'visit us'.

At this stage - mid-October, only Richardson, Patti and I knew what was being planned. It was time to make the knowledgeable group slightly larger. Now - we were finally ready to bring Shaun Kenny into the inner circle and I flew to New Jersey to do it in person.

"A three day made-for-TV event, repeated three times - nine days total. We tell people to get themselves to Fort Lauderdale, and climb aboard a chartered 727 that will in 90 minutes deposit them on Provo. There we meet them with prearranged taxis, buses and trucks to take each person to a hotel, lodge or home where they will be assigned for the three days and nights they are there. Everyone is handed meal vouchers for three meals a day at a selection (theirs) of restaurants.

Each morning ground transportation, prepaid, will pick them up, and haul them to the seminar meeting place (at the nefarious Cal Piper run Island Princess - what better spot to stage a slightly left of center offshore satellite show?) where seating for up to 125 will be available and lunch will be served. They will spend the day being shown, and allowed to ask questions about, all of the various busting-Videocipher options. All sessions will be put on videotape and in the evening there will be an informal suppliers forum where anyone who wants to deal in videocipher busting products or technology can present their wares. At the end of the third full day, they are hauled back to Provo's airport, put on a 727 which has just landed with a new group of 100-plus and it will take them back to Fort Lauderdale where they can connect with commercial flights back home."

I stopped and drew a breath as he stared at me with totally non-believing expression of, "you have lost your mind!" He was being generous, thought I.

"Oh yes," I began anew. "Everyone attending will be given, as part of the Seminar fee, several mod-chips which will be supplied as working samples by the suppliers who will be on hand."

With mod-chips selling for up to $300, 2 or 3 'free' as a part of the event could pretty well wash out the fees we were accumulating for air transport, hotel lodging, food and Provo hospitality.

A very pregnant pause - one of the few times in our lives together where Shaun had absolutely nothing to say. But his mind was grinding away. Then he said, "This is the end - right? It is all over and this will be a burial ceremony? Coop's going-out-of-business finale???" Not quite - I withheld a desperation plan that I would shortly share only with Peter Sutro.

Of course at this point in time (mid-October), with the bare exception of 'reserving subject to confirmation every bed, taxi, bus and eating spot' on Provo for a ten day period, nothing else had been done. Using a Fort Lauderdale travel agent (Airport Travel), with whom we shared office space for CSD, I knew that to charter a 727 for three return flights to Provo was going to cost around $45,000 per trip.

Patti did what she had spent a lifetime in training to do; working out the cost of every aspect of the ten days including the fees to local taxi drivers and bus operators, three meals a day, complimentary bar vouchers, lodging charges, and even inclusive of Provo airport departure fees. In Fort Lauderdale, we began putting the finishing touches on the logistics of 'selling' this package to sufficient attendees to get us past the big hump - the charter plane charges. The simplistic math was frightening - $45,000

per flight divided by 100 people came to $450 per person. But as the plane would leave Fort Lauderdale with attendees coming down and return to Florida with the prior group's attendees going back, it worked out to $225 per person one-way. Said that way, it seemed manageable. But suppose one or more flights only attracted 50 people, or 25? $225 became $450 or worse yet, $900 per person! When it came time to sign the charter contract, Patti and I knew we were on the hook for a huge sum of money, if 'nobody came to our party'.

On Provo, we counted on our 'isolation' to allow us to share the on-ground details with the local hotel, restaurant and transport groups. Setting aside Club Med which existed as its own enclave, nothing approaching 100 people had ever arrived on a single flight and proceeded to 'take over' the island. We still counted tourists in pairs or quad groups - 100 or more at one time was going to be a real test on the island's tourism industry to pull together and all work as a team. And when we had 100-plus times 3, well, it would be the busiest ten days the Turks & Caicos had ever experienced. I played hardball with each group, telling the hotel folks, "you have five minutes to make up your mind - then we cross you off the list!" Whether they had 5 beds, or 50, as at Island Princess, landing ten days of being sold-out was a serious temptation. The restaurants had a more difficult time accepting our meal-voucher plan. Three meals a day times 100 visitors times ten days was big time business. But they had to agree to maximums or caps on charges and for each voucher they would collect as payment, Patti would write them a local Barclays Bank check the very next day. Finally, the taxi and tour bus folks.

To drive a taxi or mini-van tour 'bus' was political. The elected political party rewarded those, who supported it, with taxi permits, suspending those approved by a prior administration immediately after local elections. Patti had surveyed those with current licenses, added up their transport seating and told me with a look of fear, "we will be 40 or more seats short most days assuming nobody else on the island needs a taxi." I called Oswald Skippings, a local politico, and suggested he was in a unique position to make big time points with the constituents who had not supported his party.

"Grant them two-week temporary permits - renewable at the end of the Seminar if they swear allegiance to your party," I suggested. Oswald had received an abundance of our local WIV television coverage during the most recent election campaign and I believed he and I were on the same wavelength. I was not wrong, and sweetened the deal at the end.

"We plan two more of these events before July," I suggested. Not a bald-faced lie, but also not a certainty. For nearly a year Patti and I had been spark plugging a 30 minute TV show called 'Provo Magazine' and several dozen local totally TV production neophytes had signed up to help create 5 to 15 minute TV show vignettes focusing on the diving, treasure hunting, fishing and general life style of our island. Somehow, as it all seems like a horrid dream today, we managed to create ten shows and they were launching on satellite (through the Caribbean Super Station) at 7PM Eastern each Tuesday in January. This was to be the realisation of a years old dream I held - weekly television publicity for 'our island' transmitted from the Eastern Caribbean to Hawaii, Central America to Alaska on a scheduled basis. I promised Skippings the opportunity to appear as a co-host on a TV program. Whatever works!

Logistics. From mid-November through mid-December, Shaun and I were busily creating, tossing out, recreating Boresight segments to be ready to air as soon as the final major element was in place. Ed Grotsky saw great value in being on hand and agreed to supply up to 350 of his mod-chips in one wholesale order for the almost modest fee of $75 each (a quick $26,250 for Ed and his Canadian partners), and then to sweeten that by offering 'show discounts" to attendees during the evening 'trading sessions'. But to make it seem like 'free chips' offered as part of the inducement to attend were valued at the cost of attending (thereby making attendance essentially 'free'), we would need 2 or 3 more 'Ed Grotskys' to surface before show time. This would be a major point of stress to me personally for the next sixty days while the chips fell in line - yes, budding Ed Grotskys were rising to the surface every week. And it was happening not because others had 'broken the code'; in the best of piracy traditions, new suppliers were simply purchasing one of Grotsky's chips and duplicating it on their work bench. A 'pirated copy' of a 'piracy chip'!

More logistics. The 'need to know' group was growing by early November. Steve Bepko, the man 'befriended' by the mysterious 'Mr Greenjeans' at a hamfest, leapt at the opportunity to be flown to Provo with his family expense-free in exchange for appearing as a session teacher and co-ordinator - a decision he would later much regret while undergoing intensive grilling from FBI agents. Peter Sutro, the Dehnert family and even 'Captain Midnight', and others, would be offered free seats on the chartered planes mostly out of our allegiance to the assistance they had provided in years past. DESUG's Richardson readily agreed to be host-moderator and hand selected additional group

members signed-on to participate as session leaders.

Shaun to me. "How do we filter out spies from HBO and M-A Com? You know they will be there!"

Of course I did. In fact, I expected the earliest ten to register, once announced in public, would be from 'the enemy camp'. I was wrong - through DESUG, a fellow claiming to be from Illinois, whom Richardson had trusted to rise to near the top of the group's management structure, was already being paid by M-A Com to feed back everything he learned about DESUG activities. His name was Steve Hersee, or so he told us.

By late November it was impossible to keep a cap on the promised event. It had a name - The Descambling Summit. Neither Boresight nor CSD had yet announced it, formally, but word was spreading in the would-be piracy camp and of course M-A Com and their friends already had a tip-off. A number of folks, who like Ed Grotsky claimed to have 'broken' Videocipher, called me offering their services. Each requested 'time on the podium' to extol the virtues of their products - their own version of a U30 (or other) 'mod-chip' to turn a M-A Com Videocipher HBO authorised receiver into a clandestine device; authorised, without the knowledge nor participation of HBO.

By early in December, just prior to the first 'official' CSD and Boresight announcements of the 'Summit', I was semi-permanently lodged in Fort Lauderdale testing these various products and then with Alli Lake running the video camera, recording, in a corner of the CSD office, reports for Boresight. Several of the chips worked poorly, and the folks who sent them to me for test were very unhappy when I displayed how badly they functioned on Boresight. One, out of North Carolina, called itself the 'Chicken coop Chip' (for reasons unknown then or now save that the creator claimed it was done on his work bench on a rural Carolina chicken farm).

Of course it was illegal

Perhaps, had I planned to never return to the United States again, and Shaun Kenny and the Boresight crew had stayed on with me, we might have escaped federal prosecution and months of very uncomfortable questioning from the FBI and other agencies. It was, in October, 'curious' to me why M-A Com elected to sell their 'Cable and Home Group' of products to competitor General Instrument (GI; formerly Jerrold Electronics, the 'child' of ex-Pennsylvania Governor Milton Shapp) on almost the exact day M-A Com would have been clued by their hired spy Steve Hershee that, "yes indeed - Videocipher has been broken."

GI paid M-A Com $220,000,000 for a group of products and firms that included Videocipher's home TVRO version. Wall Street analysts were dumbfounded by the move and the *Wall Street Journal* reported a number of reactions.

Harry Rosenthal of Prudential-Bache Secutities said, "If the descrambling business is so great, why did M-A Com give it up so cheap?" Another was quoted in reacting, "M-A Com becomes financially stronger, but loses a stable earning base; General Instrument receives a stable revenue stream, in a non-growth area," suggesting that reviewer believed Videocipher to be a cash-cow with no growth potential.

I was not confused. And my clarity on the subject went back to the days when I spent overnights at the home of the Microwave Associates (now M-A Com) Chairman of the Board, Dana Atchley Jr. The firm had coasted for two decades creating clever tools for 'the good guys', such as police radar, and then once the good guys were heavy users of their products, announcing new microwave devices for the

'bad guys' - microwave detector receivers that sold as complete products to consumers for the singular purpose of alerting them to the nearby presence of a Microwave Associates radar gun transmitter.

Hit the brakes! Fuzz radar!!!

And the cash register rang at Microwave Associates - M-A Com. Ahead, during the Provo Videocipher events, I would have a first hand demonstration of how closely the pirates and someone (I never knew precisely who) at M-A Com nee GI were working together to make Videocipher 'ancient history' almost before it began. But once again, I am slightly ahead of our time line although this touches on the most fascinating 'Harvard MBA Plan' of all - scuttling your *own* ship, to sell more products!

The Wall Street Journal continued, "For M-A Com, the sale is a part of a restructuring aimed at withdrawing from consumer oriented businesses it has built up in recent years." That included firms they had acquired in their quest to be a one-stop supplier to the home dish industry - back before their Videocipher creation destroyed that industry. Firms such as Prodelin (manufacturer of satellite antennas), Comm-Scope (manufacturer of cables for TVRO, and cable TV), Omni-Spectra (manufacturer of satellite antenna products in competition with Tay Howard's Chaparral) and of course the M-A Com facility in Puerto Rico where H1 and T1 receivers - plus Videocipher products - were assembled.

$220,000,000. A big bunch of cash for product lines which seemingly had passed over their peak of sales activity back one day before HBO began full-time scrambling of their movie channels. GI had to know this - although they possibly did not in fact understand, at that time, 'Videocipher has been broken'. Of course an announcement of a sale completion in September had to be preceded by months of negotiations going back to perhaps late 1985.

An analogy. M-A Com invents the police radar transmitter. Then, a few days before it announces police radar *receivers*, it sells the product line of transmitters to an unrelated third party. The sale signed and the deal done, then M-A Com announces their new products that make police radar *receivers* practical. This did *not* happen - but between police radar and home satellite dish systems, someone at M-A Com worked out that it could happen. GI seemed to be the sucker in this one. And if, by the Provo Descrambling Summit, I had firsthand knowledge and would be a witness to how someone at the ex-M-A Com, now GI, plant in Puerto Rico was 'feeding information' to a piracy group, well - GI was not only a sucker, they were taken for a ride by the guys and gals

from Boston. Or so it seemed. In fact, it was one very clever marketing plan as we shall see. Shoot yourself in the foot to save the rest of the body.

"Why should M-A Com bother assisting the pirates?" is a fair question, after M-A Com had GI's 220 million in their bank account. The answer is, first you create a unique product, then you sell it to a waiting market and once sold, you undermine that market by releasing a new product that undoes the first one. And then you return to the market with a solution you have worked out but held in limbo waiting until the first product is so thoroughly defeated in the marketplace that the new owners of the technology are desperate for replacement technology.

No - the game need not stop there. For the second variant there is yet another technical end-run that will 'bust it', as well, which of course will lead to a third variant on the first technology and ultimately a third variant on the busting technology. It didn't hurt M-A Com that the 'Harvard School of Business' was just a few minutes drive from their Burlington headquarters, nor that Harvard MBAs hired by the high-tech firm clustered around the M-A Com water cooler at every break period. M-A Com intended all along for the first version of Videocipher to be 'broken' and would assist this happening, if required (Mr Greenjeans was no accident). We'll work out why.

Was this unusual? Were these people breaking laws?

Not at all. They were doing what MBAs and clever entrepreneurs had done from the early 20th century in America - building a better mousetrap, which purposefully included 'back doors' and correctable 'defects' so as to guarantee them a second, third and even fourth shot at the same marketplace in future years by offering a 'newer, better, improved' version of the original product. GI possibly erred by not having more Harvard MBAs on staff, but equally likely, they were a party to the plan when they spent $220,000,000 to acquire the product lines.

If Dana Atchley, Jr. was counselling M-A Com to shuck the entire group of products and firms they had acquired as home dish systems exploded, it was because his Harvard guys and gals had come to the inescapable conclusion, 'home TVRO is dead'. And that was good enough for me. It was to Atchley that my first 'business plan outline' to create the home dish industry had gone back in 1978 and if he and M-A Com were getting out, well - I had to admit to myself they were as a group far brighter than I. And I understood my personal assignment - "Lock the door and turn off the lights; the game is over."

I knew from the day all of the Descrambling Summit pieces finally fell into place that we were going to be quite safe from prosecution if we limited our 'seminar teaching' to material presented live and in real time only in the Turks & Caicos Islands. Attorney Clare Skatfeld and I went as far as the current British appointed Governor on this question, and he in turn assigned the matter to the British appointed Attorney General. The answer was unequivocal and clear. "Do it. No problem with local law."

I also realised the archilles heel in this project would be the 'free mod-chips'. Grotsky, hiding behind a beard, pretending to be a citizen of the Dominican Republic, and others like him who signed up to be seminar teachers, were another challenge. Handing out chips that busted Videocipher on Provo was one thing - but when the attendees returned to Florida on the chartered 727s, well - at the very least, with ten or more HBO and GI 'spies' attending the sessions, it always seemed unlikely to me they would be allowed to 'walk off the air plane, through customs, and trot to a domestic USA flight', carrying DES algorithm mod chips.

For this most obvious reasons, the first thing we told folks attending session one was, "You are not smart to return to Florida carrying the mod-chips. After you receive them, take the chips to the Island Princess desk where they will be placed into an envelope you will address to yourself, carried by chartered flight to another Caribbean country, and then sent via parcel post to you at your home."

Perhaps four in ten took this advice to heart, emphasised by local attorney Clare Skatfeld who had agreed to sit in as a 'legal advisor' on a first day session. The other six? Very foolishly, they opened their toothpaste tubes sticking chips inside the Colgate, dropped them into their dirty underwear, or stuffed the chips onto circuit boards they had cleverly brought with them on the way down.

We also warned, from the leadoff Steve Bepko session for each group, "We know that there are investigators here from GI and HBO. The fellow or lady sitting next to you may be such a person. You are well advised not to share your plans with anyone, no matter how innocent they may seem to you to be." Bepko, following a script Clare Skatfeld had written, also read a disclaimer advising everyone on hand, "This entire technology is illegal to do in the United States. It is not illegal for you to be here, to assimilate the material presented to you. It *is* illegal for you to return home carrying on your person, or in your luggage, mod-chips."

By this point in time, Grotsky's Canadian group had a reasonably

well established Canadian mailing address which they extended with a Turks & Caicos order line telephone; another competitive group had a Bahamian address, and two more would, by showtime, have arranged through Skatfeld for Turk & Caicos addresses.

To my total surprise, Grotsky had arrived on Provo's doorstep in early-December; himself, his wife, and children. They promptly rented a home a couple of miles from Patti and I, and with his beard growing daily he began to implement his basic business plan to create from a Provo headquarters a 'mod-chip' business. The Grotsky family had packed their bags and literally stole out of Phoenix in the dead of a Saturday night, travelling over a circuitous USA domestic route using false names to Miami, and then to Provo. I learned of his plan only after he made a 'local' call to me to announce his arrival. Back in Phoenix, on the following Monday, employees at the much reduced Arunta Engineering would discover, 'the boss is gone' and 'nobody knows where he is'. Everything the Grotsky family could convert into cash money had been disposed of while sneaking out of Arizona. In a humorous (to me) anecdote, the first week the Grotsky family was 'home' on Provo, Ed arranged to buy into the country's only slot machine business - controlled until that time by a local (native) chap who had a modicum of technical skills to keep the machines running at locations such as the Island Princess. With Ed's technical savvy, it quickly turned into a major money maker. There was something prophetic about this investment - slot machines on top of 'mod-chips', funded of course by his early earnings with anti-HBO devices.

All of this transpired prior to the 'Descrambling Summit' and by the start of 'the Summit' Grotsky and his Canadian partners were past 1,000 mod-chip users. This was the tail end of 1986 and the very first 'portable' (hardly 'laptop' unless you had a gargantuan lap!) personal computers had just come on the market. Ed had worked out how he could download (reprogram) a U30 chip from his PC, using a plug-in circuit board that hung on the side of the twenty pound 'lap-top' like an unwanted third arm on a human being.

This allowed him to arrive at a prospect's home or place of business, remove U30 from a Videocipher, stick it into his custom circuit board connected as an appendage to the 'portable' computer, and then push a few keys. Within seconds the U30 (whether an original or one he brought with him as a 'spare') was now capable of receiving almost every pay-TV channel, after being reinserted into the customer's Videocipher.

I saw him perform this operation dozens of times. After each 'inoc-

ulation', he entered some information onto a separate file in the PC. Here he caught my attention, on purpose I suspect. On this file was the name, address, telephone number and some identifying numbers for each customer for the mod-chips. Hundreds of individual names, well past 1,000 when I last saw the file, of which of course M-A Com or GI would have paid huge sums of money to have their own copy. These were the guys (and gals) all over the USA, Canada, and the Caribbean who had elected to modify their Videocipher modules or receivers with Canadian-sourced 'X-ACT brand mod chips'.

Today, Ed Grotsky is dead; may he rest in some sort of self-induced peace. But in his 1986/1987 computer files, much to his delight and enthusiasm, were people who's names, if you did not recognise, could easily be traced to their position in life. Ed to me, sitting one night in my son Kevin's bedroom just prior to the 'Descrambling Summit', as he scrolled through page after page of 'customers'.

"Here - recognise him? A US Senator from Texas. This one? A federal district court judge in Birmingham. And this one?" Even I recognised *this* name. A major top rated film actor at home in Malibu. What they all shared in common, along with dozens of others I either should have recognised or did pick out without any prompting, was their use of 'mod chips' for their Videocipher receivers.

I had to ask. "How did you get in contact with - these folk?"

Now this was before Internet, before web sites, before remaining anonymous and hiding behind some stupid self-created pseudonyn. Naturally I was puzzled how a federal court judge in Birmingham found Ed Grotsky and his mod chips - setting aside the mind set that caused this person to choose to go 'around the system' to retain his HBO service.

"Dealers. We now have more than fifty dealers - business folks who sold the original satellite dish systems, who are actively contacting their client list offering them two versions of 'upgrading' - the M-A Com 'way', and our way."

A US Senator? Yup. I could reveal his name but will not do so. It was probably a weak moment in his life when he elected to follow this pathway. And as he has long been retired, sullying his name accomplishes nothing good at this point in time. He, at least, never chased a call-girl into a water fountain in DC - as best I know. I mention this because the chap who did this - another elected member of the US Congress - was also a customer of record of Ed Grotsky.

Grotsky was very much in business prior to the 'Descrambling Summit.' He did it pretty much through 'agents'. Travelling to Little

Rock (from Provo or wherever) for a $300 sale made no sense - Ed told dealers they had to 'batch' some quantity (25 was a common number but it varied based upon travel costs) of 'conversions' before he would fly in and go to work. 'Work' was almost a joke - converting a Videocipher U30 chip required less than 60 seconds of time with his non-lap-top-portable. Even with small talk and goofing off, an hour for $7,500 (25 conversions) was a long time. Ed maintained a sliding scale - $300 per conversion for small quantities, down to $200 for 100 at a time. The dealers in turn charged $400 (or more) for having a Videocipher 'upgraded'. All cash. No credit cards, no checks.

Travelling 'incognito', with an inaccurate passport and driver's license identification, Grotsky was a wind in the night blowing into and out of town. One town, one state, one country after another. He was a model for all who would follow, but nobody ever came close to his level of sophistication, nor his ability to rake in the cash in newly minted US one hundred dollar bills. The rest were, for many years, amateurs.

As the Descrambling Summit approached, Shaun Kenny's Boresight TV program became a major promotional tool. Sitting in my front room on Provo, I recorded to 3/4" videotape a number of reports designed to cause viewers to forget every modicum of common sense they might possess by picking up their telephone and calling the 1-800-toll-free-number of Airport Travel in Fort Lauderdale.

"Operators are standing by," I recounted, which indeed they were each Thursday evening the Boresight program aired. The response was only slightly short of amazing. Over the telephone, with a VISA, American Express or Mastercard, they stood in line to spend up to $1,400 each to travel from Fort Lauderdale to Provo, 'hang out' for three full days, and then with 'mod-chips' in hand (against our advice) reboard a plane to return to Fort Lauderdale. More than 100 in the first ten days, more than 350 folks at the end of four weeks leading up to the first Descrambling Summit session. Airport Travel, accustomed to writing perhaps six reservations per day - ten on an exceptional day - was now writing up to 50 per day.

GI, only weeks into owning the Videocipher license, reacted with a heightened level of unconfined anger. Overnight, they created an anti-piracy task force led by a recently retired FBI fellow with expertise in fraudulent transactions, as its head. And a major clue as to the consumer mind set at work - simultaneously GI's sales staff reported orders for the Videocipher equipped receivers had shot way ahead - more than 200% in the month that Boresight was promoting the

Descrambling Summit. Suddenly, distributors who had been unable to give away Videocipher product, were back ordered.

Dealers who had all but given up on making a business success of selling home dish systems now found consumers strangely agreeable to a 'mod chip' version. First the consumers had to spend $400 on a Videocipher module which only worked with a new $700 GI receiver - the two million or so pre-Videocipher receivers in use were not convertible to Videocipher except after internal surgery by someone with the skills of Alli Lake and M-A Com was not making the stand alone decoder available, anyhow; another clever bit of 'marketing' on their part..

Having spent $1,100 or more for a new receiver and decryption module, dealers reported consumers actually anxious to have their modules 'upgraded' with a mod-chip; another $400. It came to $1,500 or more just to tap into HBO and other cable programming, which had they agreed to purchase in a more stress free format might have totalled $30 per month. There was obviously a high level of consumer friction out there - "I want my HBO!" for sure, but, "I'm not sending *those bastards* one thin dime for it!!!"

What all of this told me was that from day one of home dishes, nobody - not even I - fully understood the mind set of the marketplace. In CSD for January 1987, leading up to the Descrambling Summit two days after the front cover date, I wrote what I still consider to be the correct assessment of 'why' TVRO took off so rapidly, and more importantly, 'why it died', when it did, well ahead of the actual scrambling of services.

I wrote:

"I submit that the public was buying TVROs for two reasons; because owning a dish greatly expanded their entertainment and information sources, and, because the dish allowed them to watch 'forbidden fruit' which other people (cable subscribers) were paying money to watch.

"If you look back at the sudden drop in dish purchases, and search for a reason why this drop off occurred, you must come to the reasoned conclusion that people stopped purchasing dishes because they had been told that if they were going to watch satellite television in the future, they were going to have to pay for the service.

"I no longer believe that the public was as confused by the scrambling as they were turned off by the scrambling. Stop and think about the first time you had satellite TV in your home. There was a natural high associated with tuning in HBO or Showtime and watching a

movie that you knew, down deep, was not intended for your home. We like to say, as an industry, and believe, that people are basically honest. They are, and always have been. As long as there was no prohibition against owning a dish and tuning in those signals, watching HBO was akin to walking down the street and finding an unmarked money clip filled with $100 bills resting on the curb.

"When the Cable Communications Act of 1984 established a paper mechanism for scrambling of HBO (and other signals) and collecting money for services, I believe many people who were thinking about purchasing a TVRO decided, 'No thank you, I will wait'. That made 1985 a less than great sales year; some of our first industry financial failures happened in 1985 (such as Intersat, Locom and others). In retrospect, 1985 should have been a million terminal sales year when as an industry we were finally ready to support that level of new sales volume. It did not happen and I believe that a significant part of the public held off buying a terminal in 1985 because they perceived that one day - soon - those money clips would no longer be sprinkled along the curbs and sidewalks.

"When 1986 dawned and HBO really did full-time scramble, that was the final proof the public needed. In advance of their full-time scrambling, HBO was testing their collection mechanism and if you carefully review the sales pattern for 1985, sales went into a decline early in many geographic regions in cadence to the increase of scrambling hours by HBO and Cinemax.

"Sadly, it is now apparent, at least to me, that this industry had a brief fling in history because we were giving away money clips all across America. When we ran out of money, people stopped buying what we had to sell.

"Bottom line?

"The public is far brighter and far more perceptive than we have given them credit for being. They know the dish systems work, that dish systems are reliable, that dishes do wondrous things. But unless they, the public, live where local television reception is really poor in reception quality and where you cannot rent a movie for 99 cents at the local 7-11, why in the world would they plunk down $1495 or $2995 or whatever to own one of these things? In small numbers you can sell some of anything to somebody, some of the time. In large numbers, you can only sell lots of something to lots of people all of the time ... when the price is in line with the public's perception of value. The public is now painfully aware, short of living where terrestrial TV reception stinks or cable is not available, that owning a dish

system is no bargain.

"With the advantage of hindsight, everyone made big mistakes in allowing TVRO to go so far, so fast, without controls. That includes the FCC who started it all in October 1979 by simply deciding that 'no licenses are required for home dishes'. This also includes the programmers who lollygagged around for six crucial years before they got their much-threatened scrambling into operation. And responsibility must also go to those of us who participated in the creation and sale of TVRO hardware because we allowed the ineptness of the programmers and legislators to lull us into a false feeling that 'we cannot be stopped'. Finally, that must include those terribly self-serving satellite TV programming guides appearing on news-stands throughout America in their monthly hundreds of thousands of copies which, somehow even to this day, never seem to find the proper journalistic position to address with honesty and integrity all that was happening to this field of endeavour.

"Through it all, I believe, the guides were especially damaging by ignoring the real events and the real underpinnings of the TVRO explosion. They, through their combined circulation in excess of 900,000 per month, urged the public to believe that 'all is well' and that somehow, magically, 'the public will be protected'. Ultimately, of course, all was not well and nobody in the guide business made even a stab at protecting the public that loyally purchased their pulp publications month after month."

As Jack Perkins so correctly stated on the Tom Snyder December 23, 1979 NBC report, detailing the birth of home TVRO, "*It is pay TV without paying.*" Indeed it had been. The Federal Government left it to the marketplace to sort out, and when that finally happened, it collapsed like the proverbial house of cards that it was - from day one. All of that combined or singly could have and should have spelt a short life cycle for home dishes; the 'CB radio craze' of the 70s fast-forwarded to the 80s. A quick rise in sales, a huge spike in public attraction, followed by a plummet to ground zero; all in the wink of an eye.

What this said to GI, after spending $220,000,000 to acquire the 'home TVRO product assets' of M-A Com, was this. If GI was going to recoup its investment, it either had to restart the home TVRO sales world, or, find some way to sell new product to the existing marketplace estimated at 2 million or so systems. Restarting the home dish world sales was not going to happen - none of the programmers were going to co-operate because to do so would jeopardise their much

larger customer base - the cable system operators. CNN had 20,000,000 cable delivered subscribers and nothing that was going to happen in the TVRO field would ever bring the dish splinter group of potential clients close to that reach.

New C-band TVRO sales were, for all practical purposes, a 'dead issue'. The public that had not yet bought a home dish system was not going to stand in line - ever again - to do so. The money clips on the sidewalks with $100 bills were gone.

Which left the 2 million existing terminals. To continue providing films and other major attractions, virtually all required an upgrade - a new GI receiver (the original M-A Com T1 or H1, now under GI branding), at $700 each, or, a Videocipher module installed in some other manufacturer's receiver (at $400 a module). Numbers. If 50% of the marketplace did an upgrade, and half of those went for new H1 or T1 receivers, $700,000,000 in sales. Profit margin? In the region of $100,000,000. Or, if half of the 2 million market sprung for a competitive receiver which still required the $400 GI-Videocipher module, $330,000,000 in new sales with a profit in the region of $100,000,000. No amount of number massaging seemed likely to get GI back their $220,000,000.

More bad news for GI. In the 10 months since HBO scrambled and GI took over, not more than 50,000 Videocipher capable receivers had gone into the field. What they needed was an incentive - something to cause those 2 million consumers who already owned a home dish system to reach for the check book for either a H1/T1 receiver, or, another unit plus a GI Videocipher module. But how do you get people to do this? Sales were stagnant.

Free money clips on the curb.

If the public had stopped buying home dish systems because they now believed 'owning a dish was simply another way to pay for pay TV', how about creating a scenario which made people believe there was a detour around paying?

Ron Putnam was the new head of 'security' at General Instruments. We talked, frequently, as late as one week prior to the opening salvo of the Descrambling Summit.

Me: "This (the Summit) can be stopped. What will it take to get folks from GI, HBO around a negotiating table to find a better way than piracy?"

Putnam: "Those modifications to Videocipher from Canada and the Bahamas won't do it. We can fix all of those 'cracks' in the dyke with software routines. If you want us around a negotiating table, bring me

a non Videocipher receiver that cracks Videocipher. From the ground up - no M-A Com parts - no modifications to existing receivers. A brand new receiver that plays HBO and others, outside of the HBO authorisation stream. Then, we'll talk."

CSD for February 1987 carried two pictures of such a device. Unfortunately, it was not functional when we 'touched it' in preparing a report for Boresight. A Taiwanese group, totally ignorant about matters such as US Copyright and the US military's position on the DES encryption routines, had reverse-engineered a M-A Com Videocipher module with what amounted to an Ed Grotsky generic modification to the authorisation chip. When it worked - something I never saw happen but about which many told me they had seen - it did what Putnam demanded. Totally without M-A Com hardware and without going through the authorisation routine, it did Videocipher. (Someone did finally manage a Videocipher box knockoff - Canadian Norman Dick early in 1988, after he attended 'The Summit' in 1987.) When I mentioned the Taiwan knockoff more than a month following the Descrambling Summit, Putnam laughed and threw the curve ball which would one day become the bane of all piracy activity.

"Copyright," he began. "All of that computer language buried inside the Videocipher chips is our own creation. Even after the pirates add to it or modify the software language, the chips retain at least some of our 'operating system'. Without it, even when modified, they won't work. So at the end of the day, at the very least pirates are in violation of our software language copyrights." What he meant was, even if someone created a stand alone device that did everything Videocipher could do, in the end the 'operating software' which made it work was sent through satellite to the box. And GI held the copyrights on the computer language that turned it on. The only way to get around this would be to create brand new software that did not impinge on their copyrights that also turned on the make-believe receiver. Lacking that, they had the pirates in a 'copyright violation hammer lock' from which there was no apparent escape. A subject to return to.

Putnam and GI, it would turn out, really wanted the Descrambling Summit to happen anyhow, for a multitude of reasons that will shortly be clear. Others had, during November and December, attempted to 'negotiate' a settlement with M-A Com (and later GI). One of the routines was to work out a cheating method, contact M-A Com (later GI) and offer to 'sell the technology' for a fee; $100,000 was typical.

The most brazen originated with Ed Grotsky and his moneyed backer, who retained some personal persuasive powers inside of the

cable industry. CSD for February 25th (1987) reported:

"There came an opportunity for a single, one-time shot at reaching GI. It all came to a head on October 24. A very prominent individual in the cable television industry, actually a founding pioneer, had a business investment interest in the TVRO industry."

This would of course be ex-TelePrompTer head Irving Kahn.

"He was talking, routinely, with a member of the (piracy) group. The TVRO person proposed a meeting between GI and the (piracy) group, using the cable pioneer as an intermediary."

And this would of course be Ed Grotsky.

"A meeting was arranged. It would fall around the 27th of October and would include the cable pioneer as well as a high management person at GI. These two individuals were friends of more than a decade and all of the formalities of a nervous, first meeting would therefore be bypassed. (Prior to the meeting) the cable pioneer sought legal advice from a well known Washington law firm. In a 'Saturday-Delivery' Fed-X parcel, the law firm's Senior Partner wrote the cable pioneer as follows:

"'Regarding your calls of Wednesday and today and your meeting with (GI person name) scheduled for Monday, concerning the 'solution' to his Descrambler, I want to advise extreme caution. I do not want to be an alarmist. However, my assessment of the law, however cursory at this stage, is that it will be very difficult to obtain any financial gain through exploitation of this technology without risking potentially serious consequences. This statement strongly urges you to caution against any statements which could be implied as threats to market the technology or knowledge.

"'I speculate that (GI) would be terrified over any method by which the individual earth station owner could, with relative simplicity, buy a stock item of hardware and thereby break the code. But I also suspect GI is not overly concerned with a circumstance involving the necessity for a sophisticated, custom-designed chip and some expert assistance in the installation. GI probably feels that the latter can be kept reasonably under control with vigilance and some legal intimidation.'"

The words constituted a strong warning to Kahn and Grotsky resulting in the October 27th meeting being cancelled. Kahn, Grotsky now warned off ("...caution against any statements which could be implied as threats..."), rethought the scenario that had them offering to 'sell' to GI the 'secrets' leading to busting of Videocipher.

Pre-Summit Piracy

GI's Videocipher-Cop found it pretty straight forward to locate dealers who were, whether dealing with Ed Grotsky or one of his clone-like competitors, selling mod-chips even before the Provo Summit. GI's goal was to apprehend and formally charge some 'examples' prior to the Summit as a warning to anyone who might think this sounded like an attractive new business venture. With the co-operation of several federal agencies including the FBI, GI wallpapered the industry with a stern warning advising it was illegal to ship Videocipher products outside the United States and then personally visited with several Videocipher distributors, whom everyone knew were shipping into Mexico and the Caribbean, to issue a personal warning. A number of survivor distributors, including Charlie Ergen's Echosphere (later, today's DISH TV service), were on the 'visit list'.

Grotsky and his Canadian cohorts had, in fact, delayed mass-merchandising of their 'X-ACT' mod-chip from their August breakthrough discovery through all of September and October. It was all part of their own business plan.

The failure of Videocipher receivers to catch on, to make much of a dent even in the depressed sales world, was widely known. Grotsky and group feared they could quickly saturate the under 50,000 market existing and postulated it would be better to wait until the Videocipher-capable universe had grown. They also believed, until the October 27th meeting was cancelled, 'upon advice of legal counsel', that Irving Kahn's entree into GI's upper echelons would result in some sort of 'single sale' - their clandestine technology in exchange for money. Big money. At least a million dollars.

Had X-ACT been the only chip game in town, had GI not had their own marketing plan to hype the sale of Videocipher capable products, with benefit of hindsight their 'sell to GI' master plan could have gone through. But there were by November competitors to X-ACT, at least one of which had begun by acquiring from Canada an early X-ACT chip and then doing what pirates do best - copying the chip on their own. Other competitors came from Arizona, North Carolina, Arkansas. X-ACT may have been first to penetrate the magic chips in Videocipher but they had no exclusive hold on the technology behind the act. In fact, the largest percentage of sellers had not created their own chips as Grotsky had done - they were simply acquiring someone else's work and then copying it in wholesale quantities. If you started with an X-ACT mod-chip, added $100 in commonly available computer hardware, it was possible to crank out tens of mod-chips each hour, whether you did this in a 'chicken coop' or an alcove in your garage.

While the Descrambling Summit was rolling around still unannounced except in my mind, interest in every aspect of Videocipher (and to a lesser extent, the crashing of Canada's Oak Orion scrambling system) had been building monthly from approximately June. As Patti and I were touring the Pacific and Asia at the time, sending back typed sheets of copy at every stop to keep CSD functioning, I decided the entire Videocipher-hack world was moving too fast to properly report only in CSD. Moreover, although it never happened, I worried that Doug Brown and would-be-editor Chris Schultheiss in their 'caretaker' status for CSD might be tempted to do some heavy editing of my text materials.

'Scramble-Fax News' was my solution - a $10 per copy newsletter where every fact, rumour, half-truth and blatant falsehood relating to Videocipher and Oak Orion could be dissected without fear of advertiser retaliation; because there would be no advertising. In support of the newsletter, a 'Scramble-Fax' hot line telephone service where by calling in and paying normal line call charges, listeners would hear a frequently updated pre-recorded audio report. A separate number was provided to allow virtually anyone to file reports from the field, turning Scramble-Fax into an early day version of today's Internet 'chat rooms'. The first accurate reports of Videocipher breaks appeared here, then on Boresight and lastly - because of the built-in time lag for publication, in CSD. Satellite radio's bad-boy, Keith Lamonica, routinely dialled up 305-771-0575 during his nightly talk shows to share the content of the latest audio reports with his growing audience of malcontents while dealers called to record the latest news and then made it

available in their shops to customers and cohorts.

Scramble-Fax was promoted in CSD from June onward and on peak days calls totalled more than 300 to the benefit primarily of the telephone company since the technology that allowed us to charge for such calls at our end had not yet evolved; essentially, just another one of Coop's 'free services'. And although I was at Peter Sutro's home when Steve Bepko arrived bearing the first significant breakthrough in uncloaking Videocipher, this and insider information shared by Ed Grotsky and others was withheld or in some cases presented as a 'what if ...' think-tank piece aimed at the more skilled and devoted of the growing cadre of hackers at work. Lamonica's nightly talk show made no attempt to separate the truth from fiction, treating any and every caller as if they were arriving carrying a secret never-before-revealed message from the king. All of this and more fed the growing pile of rumours which swept the industry daily from July through the first public announcement describing the Descrambling Seminar, late in November.

One of the favorite statements passed around during the summer of '86 was attributed to HBO CEO Michael Fuchs, which he was alleged to have uttered during a US Senate fact-finding inquisition, during July. The alleged statement was, "If they can break it, they can have it," a reference to Videocipher. Fuchs was on the hot-seat responding to concerns that HBO and other cable programmers had established home dish monthly fees which were excessive when compared to cable television system operator charges for the same services. During the Senate hearing, he was asked what HBO would do if the Videocipher system turned out to be penetrable, thereby destroying his entire home-dish marketing plan.

"They can have it," was a bit of bravado of course and it instantly fed the rumour mills. A number of tree-stump self-educated legal 'experts' appearing on Lamonica's call-in show postulated that in as much as Fuchs had been 'sworn-in' (to tell the truth, nothing but the truth, so help me God) that 'they can have it' was a legal promise HBO could be held to. M-A Com upped the anti by offering $100,000 to anyone who could bring them a 'hacked Videocipher' that worked on all encrypted channels. The operative word here was 'all' as we shall see.

The first to claim a hacked Videocipher was Canadian firm Westar; May 1986. It, like so many to follow, was a sham - more accurately, a 'scam'. Westar had gone to the US and purchased some Videocipher modules. Back in Canada, they stripped the plastic case from the product and installed the inner guts into their own physically compat-

ible container, and then arranged to have the individual modules 'turned on' in a normal customer manner just before delivering the case-modified units to unsuspecting clients. Outside, it looked unlike a M-A Com product; inside, it was pure Boston. After paying US$335 per module, tearing it apart and rebuilding, and then going through the procedure to have the module 'turned on', they delivered it for US$1,500 to a scammed customer. The module worked, for a month or two, and then when the advance subscription money paid by Westar ran out, so did the module.

An entirely new language was evolving, creative phrases originating at places where hacking of Videocipher had become a passion. One phrase was 'cloning'. It meant somebody had gone internal to the Videocipher U7 chip and extracted the numerical sequence of the authorisation code unique to that particular decoder. If you could identify the numbers/letters, and copy them from the paid-for decoder to a non-paid for decoder, the second would operate as if it were the first. Translation? As long as the first paid its bill to HBO and group, the second using the same identification number would function as well. Numbers?

144F6445FA2707

Cloning was a viable piracy plan and difficult to detect if the number of decoders using the same number was held to a small quantity. But pirates have always been 'maximum profit' oriented, even to this day. The procedure is simplistic, implementation challenging.

First, acquire a legitimate decoder and using piracy tools extract the identification number for the receiver or decoder.

Second, acquire one (or more) additional decoders/receivers and after extracting their own unique identification numbers, insert the legitimate unit's number in place.

Now, when the programmer's data stream sends a message to 'turn on' and 'work' to the first legitimate unit, it simultaneously (unbeknownst to the programmer) is turning on one or more additional units as well. *Cool.*

The operative phrase here is, 'or more', reference how many units might 'share' the same code number. Piracy, clandestine as it might be, was (and remains today) a business. Suppose there is a home with three TV sets and each requires a decoder. The home subscribes to a service for one decoder, and then with the help of a pirate, the other two 'share' the same identification number. *Still cool* because all three units remain in one home and the risk that one of these units might somehow get back into the hands of the pay-tv-police is small.

Now grow that. One box, 100 different 'clones', all sharing the same number. The authorised box and its numbers has a physical address, known to the programmer(s); and, a serial number which can be computer matched to the unit's U7 identification number. The other 100 are unknown to the programmer (such as HBO); and none of these will have a U7 authorisation number sequence that properly matches to the original serial number. One of the 100 stops working, goes to a service center where as a matter of procedure the box's identification number is compared to a master list of boxes in use and U7 address number is compared to the serial number. Now it becomes apparent that, (1) the broken box came from a different physical address - not in itself a criminal act, and, (2) the box's unit serial number does not match the unit's authorisation number.

Bingo. The box is using someone else's authorisation number!

In seconds, that authorisation number is transmitted through the satellite system and the original, legitimate, paying box turns off at programmer command. As well as 99 more sharing the same number. *Not so cool.*

Three Musketeers was a competitive piracy hack that also involved going inside of the U7 Videocipher chip and extracting data. When an individual box was authorised by the programmer for service, only those pay channels which the customer was willing to pay for were turned on. The balance were, by addressing code, left 'off'. For example, HBO was approved, Cinemax was not - a decision the consumer made at the time of 'signing up' for service.

The data file that directs the decoder to turn on some channels and not others is extracted, and modified. Once on the PC screen of the piracy person, the keyboard and cursor can be used to select specific code entries. Change '0009' to '0000' and instantly, super station WOR (New York) was added to the 'decodeable list' for that decoder. In fact, at the time of the Descrambling Summit, WOR was not even available to home dish owners - only to cable firms. Except, of course, those who had acquired Three Musketeer chips. Three Musketeers? *"One for all, all for one."*

Cloning encouraged multiple users of the same authorisation. Three Musketeers encouraged individuals to expand their viewing universe - pay $9.95 for HBO only, add a Three Musketeer modification, and instantly your receiver accessed more than a dozen additional channels for no increase in monthly fees.

Cloning chips, Three Musketeer chips, each a variant on the basic hacking methodology, appeared in the marketplace by mid-October

while X-ACT was still holding off, waiting for that 'golden meeting' with an executive of GI that never happened.

Two pieces of evidence suggest strongly that M-A Com was the origin of the important data that led pirates to unravel the secrets contained in the two addressing and authorisation chips; U7 and U30. One piece of evidence suggests that M-A Com did not participate in self-immolation. Nearly twenty years hence, the truth is possibly a combination of both.

Here is what I believe happened, based upon the best evidence of the time (1986-1987), the 'track record' of M-A Com, and the often strange and illogical responses I (and others) received from GI through the Descrambling Summit period of time. The evidence.

1/ Sales of Videocipher was woefully poor. The public's attitude was they would forgo paying for HBO and simply watch something else (at the time, more than 200 channels remained 'free'). 'Free movies' were nice, but not when they became 'pay movies'. And as late as end-of-year 1987, there were in fact other movie channels available (HBO being one of several services then available).

2/ I was not the only one who had worked out why consumers had at one point (1984, early 1985) stood in line to buy as many as 100,000 home dish terminals in a single calendar month. *Free money clips.*

3/ Cable programmers would never again allow free-to-air (unencrypted) transmission of movie and other 'cable product' programming. In fact, if cable operators could have their way, there would be no home dishes watching even *if* they *were* paying money for the service.

4/ M-A Com had collected $220,000,000 from General Instrument for a group of products and companies that included Videocipher. GI very much hoped to get their money back, and make a profit in the process.

5/ The prospect for restarting the marketplace for C-band TVRO dishes seemed bleak. The distributor and dealer organisations, so important to the rich years (1982-1995), was disappearing into Arkansas outhouse crappers very rapidly. The thrice annual trade shows, essential to creating new dealers as replacements for those who stumbled in the field, were empty halls rapidly heading for twice annual, then once per year. The trade association, SPACE, had gone out of business in financial embarrassment, the 'gotcha' lead counsel (Richard L. Brown) had moved on to cell phone licensing as the next biggy in telecommunications, and the skeleton industry remaining was planning ahead for the mid 90's launch of Ku-band small dish home

terminals; 8 years into the future.

Then we had the 'illogical' reaction of GI when presented with several opportunities to nip piracy in the bud.

6/ They discouraged any direct contact with the folks who were creating clone and Three musketeer chips even though for very modest sums - such as $50,000 - they could have 'purchased' the cloning or Three Musketeers technology and effectively stuck it on a shelf where it would eventually die.

7/ They established impossible goal posts as conditions to meeting with piracy advocates, knowing full well that in doing so they were shutting the door to any negotiated settlements.

And finally, the 'leaks' at M-A Com and GI which directly served to enhance the opportunities for piracy - as if - in fact, they wanted to see it succeed.

8/ Mr Greenjeans and his 100 pages of computer code, clandestinely handed to NASA software scientist Steve Bepko when both 'just happened to be attending' a Saturday ham radio meet in Maryland (if you believe this was a coincidence, I'd suggest you consider how DESUGer Steve Hersee, a 'plant' from M-A Com, knew where Bepko would be that particular Saturday).

9/ At about the same time, a fellow who claimed to be from Dallas, Texas, where GI's TOCOM division just happened to be located, who created - he said - a similar Mr Greenjeans like computer code listing from a M-A Com Videocipher and then proceeded to mysteriously hand it over to a hacking group in Virginia (if handing over one set of computer printout documents was risky, double your chances for success by passing out two sets!).

Our 'Mr Greenjeans' engaged in no real conversation with Bepko. A second chap, claiming to be from Dallas, was far more talkative. Here's his story as told to me in late 1986.

"I reasoned that the U7 was nothing more nor less than a memory chip. It had been programmed to remember certain commands and it allowed an 'output' to occur when the correct command numbers appeared at the input."

The output would be the free-to-view video; the input would be the unique-to-each decoder addressing key sequence. It was lock and key where you knew the lock but did not know the key. What follows pushes the bounds of practical physics but it is none the less the stuff that makes a good movie, whether accurate or not.

"I had a Commodore VC-20 home style computer and worked out pin 36 of the multiple-leg chip was a possible point to try an experi-

ment." He also had worked out (this stretches credibility somewhat) how many letters and numbers made up an address stream - the sequence that would cause the decoder to suddenly decode the video if the address "key" just happened to match the lock 'key'.

The number sequence was in the realm of:

345775459DA667

although it could have just as easily been:

B8D7CAW643148B.

The last thing in the world I am, ever have been, is a mathematician. But I will point out that we have 14 'entries' here - on the top sequence 12 are numbers and 2 are letters. Those 12 could be any number from 0 to 9, while the two could be any letter from A to Z. What this fellow wanted to do was hook his VC-20 computer to pin 36 of the Videocipher and then write a software program telling it to try *every* possible number and letter combination for each of the 14 positions until the 'right combination' caused 'the safe to open'. Tens of millions of combinations is the answer to your question; around 87 years of continual random searching by the VC-20.

"Then I left it running, with a further program to 'log' or record the correct number/letter sequence when the program 'opened' Videocipher."

We are being asked to believe that a entry level, 1986 home PC, with approximately 1/10,000th the computing power of a modern day Gameboy product, could or would ever 'find' the correct combination to cause the Videocipher to spill its guts. Yeah, I know. They blow up commuter trains in Madrid with cell phone call instructions. But this was 1986, not 2004.

My analysis at the time, not significantly altered in 2004, is that neither Mr Greenjeans nor the fellow in Texas (who called himself 'New York Ned') managed to get Videocipher to 'dump' its guts for them. What really happened is somebody at M-A Com simply walked out of the building and arranged for the codes to filter into the piracy world.

A 'mad as hell employee' who was 'fed up' with his (or her) working conditions, and unwilling to, 'take this shit anymore?' I doubted it at the time, I reject it today. I have my own evidence to validate my postulation.

During the Descrambling Summit, a fellow from Arkansas named Bobby Kaylor (at one time a major designer of satellite receivers within the Arkansas subset of the home dish industry) sat in my kitchen on Provo, used my telephone, and made six to eight telephone calls to a

'contact' in Puerto Rico. Yes, the GI plant was in Puerto Rico. Yes, he was talking through the GI plant switchboard to an individual in that facility (like any telephone company of that era, mine on Provo provided me with an end of month statement and a list of all long distance calls - including the numbers connected). Kaylor brought to the Descrambling Summit one of the most curious products of all in the piracy show 'n tell - something he called 'The European Chip'. I will explain it shortly.

There he sat on my Provo telephone, while my Haitian maid Loonie did dishes behind him, talking with 'Mr X' in Puerto Rico, time and time again, copying down number and letter sets. Such as:

48740FBOF54FF6

And then Kaylor took the newly acquired number/letter sequences from a scrap of paper to my kitchen glass topped table and used a portable PC to enter the sequences into a Videocipher he would later haul to the Island Princess for his own scheduled demonstration of 'hacking'. Confused? You won't be.

Yes, I am a copious taker of notes; the journalist that I have always been. And because virtually everyone in the industry trusted and respected my integrity and believed my oft-stated promise to keep it all to myself, for nearly thirty years I filled notebooks with information which today you find buried here in this book.

Which leads us to my own obvious-to-me conclusions.

1/ M-A Com recognised that unless money clips with $100 bills were laying around the street corners, sales of Videocipher would be slow. Very slow. Too slow.

2/ They sold this premise to GI, and engineered the scenario that 'leaked' critical but not totally complete information to the piracy world.

3/ This was done so they could on one hand be seen by the cable programmers to be combating, chasing, arresting and prosecuting hapless pirates, while at the same time planting the belief in the home dish world that, "$100 bill filled money clips have come back into style."

What GI needed to do was to create 1,000,000 plus Videocipher sales to get their $220,000,000 back. The most direct route to this was through appealing to the 'free money clip' mentality of the existing 2,000,000 home dish owners. By making it possible for pirates such as Grotsky to 'hack' into their system, sales of Videocipher modules and receivers would (and certainly did) mushroom.

Then what happens?

Once their target sales quota was reached, change the basics of Videocipher. For an additional $300-$400, or the approximate street price of mod chips, offer to sell those million-plus terminal owners a new, upgraded version of Videocipher. And if the users of Videocipher plus mod-chips did not respond? Give them a period of time (say one year) and then turn off all of the older style Videocipher modules and receivers, whether they are using mod-chips or not.

It was the ultimate Harvard MBA plan. Sell them the receivers and/or modules, wait a year or two, and then come back with a new offer that left them no choice; buy the new version or watch their TV screen go black ('No subscription' read the Videocipher introduced on-screen message, affecting mod-chipped receivers and legitimate ones alike!).

At this point (into the future - 1988-1989) spending another $300-$400 (times a million) seemed doable. And as it would in the interim, the sale of 1,000,000 (plus) Videocipher modules and H1/T1 receivers would create revenue for GI - enough to justify their $220,000,000 in cash and notes paid to M-A Com. They would call the new version 'Videocipher Plus' and yes, Bob Richardson had forecast precisely this happening back in October 1986.

What I did not appreciate, in December 1986, was the 'golden platter' being handed to GI by our Provo Descrambling Summit.

Going, going ... gone

Nineteen years after the Descrambling Summit (2006), as I write these words, the Summit itself is largely a blur, a rapid rush of singular events which combined into one total, pushing the limits of reality beyond accurate detailed recollection. Fortunately, I have my notes although the tens of hours of videotape shot during the sessions have long ago been discarded by an ex-wife who saw no historical value in its retention. I will explain.

I had attempted to include GI on the formal program right up to the first 3 day Descrambler Summit session. Friend Doug Dehnert, at my urging, went to a fellow named Fred Shuh, a VP at GI and 'special assistant' to the President. Dehnert reached the man, invited him to arrange for GI engineers and techs to attend, which suited me because I hoped to have spirited forums featuring 'both sides' of the issue (the old 'neutral and unbiased journalist' Gene D'Accardo had instilled in me was still there). Shuh agreed, much to my surprise and delight - for five days, and then he advised that "GI has ruled against the attendance and seminar appearance of employees." Shuh said yes, someone higher up in GI said, 'no'.

GI, it would turn out, had another plan - post Summit, to bring formal US federal charges against me, Shaun Kenney, (Dr) Steve Bepko and Shaun's TV co-host Karen J.P. Howes and had they actually participated in the seminar, their lawsuit plans would have been negated. How do you participate in 'The Summit' and then turn around after the fact and charge the co-ordinators with a variety of federal US crimes? You don't, of course.

I also invited a representative from the FCC, Jerry Freeman, to

attend and participate. Freeman and I had been acquaintances (if not friends) for twenty years, and he had been instrumental in nailing Captain Midnight. Another individual from 'the enemy camp' I invited was George Bell, the original Microdyne satellite man who created the concept for Holiday Inns having terminals coast-to-coast and who by 1986 worked for Scientific-Atlanta. S-A had lost the bid for HBO's (and ultimately cable TV's) encryption of cable programming to M-A Com (they had a competitive system they called B-Mac, which in fact was a better system technically as others would prove in Europe and Asia as late as 1997), and his firm and he as an individual had special knowledge about the encryption system which he appeared willing to share during the seminar. S-A would, did in fact, attend the final three day session on Provo.

So perhaps we were not totally 'insulated' from later charges that the Summit had hauled 350 folks out of the United States to a 'neutral country' to teach them technology that would have been illegal to impart if we were all in Daytona Beach, but at the same time we were not hiding behind any palm trees offshore either.

This might be an appropriate point to restate the obvious.

Virtually every person attending probably had larceny in their hearts. They were spending $1,400 each (optionally, $400 for wives - a horrible mistake on Patti's part since the air plane seat the wives sat in cost us at least $450 - and that was before meals and transport for three days!) hoping to leave carrying new found knowledge and up to four (five were actually provided) 'mod-chips' that would pretty much wash out the $1,400.

Limited by the physical ability of Provo to provide beds, food, transport and a meeting room, we were restricted to around 125 people maximum for *each* three-day session. Reservation requests exceeded available accommodations as the third event was sold out, and that was also before some clever folks appeared without warning by flying commercial (Pan American) flights into Provo, and, in private four to eight seater aircraft, from such distant points as Ontario.

Setting aside the local aircraft hanger building, the only 'room' large enough on Provo to house 125 people at one time, was the downstairs bar-lounge at the infamous Island Princess hotel. Unfortunately, we had to accept the short comings of the IP. Three of the four walls for the 'meeting room' were sliding glass doors and windows, opening out onto a white sand beach with the ocean surf less than 50 feet away. The room was 'cooled' by overhead whirling fans and once you had 25 or more people in this room, all sliding doors and windows had to be

opened and the fans cranked up to 'high' or even the most tropically-acclimatised individual turned into a sponge. So for three days, three times, all doors were open, all fans were on high speed, and anyone who cared to could stand in a doorway ostensibly being 'outside' or hang over a window ledge half in and half out for as long as they could take the physical punishment. Most attendees lost between 3 and 10 pounds in body weight because of the packed atmosphere, heat, and humidity. Most trade shows require identification badges and hire security guards to keep the unwashed from entering. We did both but it was impossible to 'police' the characters (some local who were intrigued by the event, many more who probably came down on a commercial flight and paid us not a dime to attend) that hung through a window for three days (or more) soaking up information while perspiring profusely.

Almost nobody gave us their 'real name' when registering, creating a laughable problem with Airport Travel who had to write down a self-described pseudonym for the registrant's name and then an entirely different name to match the credit card they used to reserve and pay for the trip. We routinely asked for the name of their business or company as well - resulting in such unlikely responses as, 'Up your Ass TV, Inc.' appearing on forms (and name badges we insisted everyone wear while attending). Even some of our presentation 'staff' played this game - Steve Bepko's badge read, 'Dr Stevens, New Mexico' which he completely blew in a moment of nervousness at the very first session he hosted, by announcing, "I am Dr Stephen Bepko, Maryland and I work for NASA". So much for remaining anonymous!

If you were attending, the assumption was you had a direct interest in pirating Videocipher (although a half day session was also devoted to Oak Orion's encryption system, as well). One of the most popular games was to select who in the audience was *really* an employee of M-A Com, General Instrument or some other company or agency (such as the FBI). I found this especially amusing and would stand between sessions creating small talk while the next presenter was arranging his slides plus demonstration equipment and, without warning, suddenly stick my arm out, finger pointed at an individual, and ask in a booming voice, "And you - you work for which company or agency of the US federal government???" Shaun Kenny had three TV cameras on site, recording dozens of 3/4" inch tapes and my local TV service, WIV, backed him up with a 1/2" grade tape as well. And, until the excrement hit the fan as the group returned to Fort Lauderdale to be met by an army of irate immigration, customs and FBI personnel, it became

an evening sub-session to sit and review the day's tapes and during review try to work out which person squirmed in their seat most aggressively when the camera focused on them as I suggested strongly they were a spy from the 'enemy camp'.

The overall atmosphere from day one, session one, was extremely informal. A few misguided souls appeared at the first morning session wearing business suits and ties - we had warned them not to do so - and with the air temperature near 90, and humidity a similar number, they suffered for their total lack of Caribbean lifestyle comprehension. Most would change into a T shirt and shorts or swim trunks by the afternoon session. I made it a point as MC to embarrass these folks who were dressed as if attending a technical meeting in Pittsburgh or Chicago and most got the message. Of course many of those dressed more comfortably quickly assumed, perhaps correctly, that anyone wearing a grey flannel suit was a mis-dressed employee of a firm in Philadelphia (GI); or the FBI.

One fellow I picked on the first morning approached me at the end of the initial half day.

"I would like to ask for a public apology," dragging out his drivers license and business card. "I am not an employee of GI, I do not live in or near Philadelphia, and from the moment you pointed your finger at me, nobody will sit next to me or talk to me. I feel like I have been ostracised and it is not fair. I paid $1,400 like everyone else here."

Indeed he had. I felt so sorry for him, that not only did I issue a correction statement at the start of the afternoon session but invited him to, "come home and have dinner with Patti and I." Of course Patti's and my home (well, *my* home if we are going to get technical since Patti had no legal rights to it) was an after-hours gathering point for the Ed Grotsky/Steve Bepko/Bobby Kaylor/Doug Dehnert/Shaun Kenny clan, so this lucky (or unfortunate) fellow had to spend an evening being subjected to insider's views of all that was happening. It turned out he was a representative from a name-brand firm (Zenith, in fact) who had been sent to Provo to report back on, 'what is really happening with this descrambling thing'. I never saw but would have loved to have seen his written report after spending an evening in my dining room with the crowd that hung out there.

We began each three-day session with Steve Bepko explaining the various piracy routes as they existed at that point in time; Three Musketeers, cloning, and several others that had come to light as the Summit opened. I followed this with a 'What is legal?' session chaired by attorney and friend Clare Skatfeld in the hope that nobody would

be mislead by what they were going to hear while attending. Clare was extremely conservative and painfully direct when asked the tough questions - a quick learner whom I knew was actually enjoying being a part of something more complex than overseeing a land transaction for Dickie duPont and friends. The Turks & Caicos Attorney General quietly sat at the back of the Island Princess room during Clare's first session, and congratulated him afterwards for his 'straight forward honesty'. Anyone who sat through this session and still believed he could fly back to Florida carrying a bag filled with Three Musketeer or clone or X-ACT chips simply was not paying attention. Alas, several dozen would do precisely that - and pay a price.

What GI, M-A Com and various federal agencies including the FBI, Federal Trade Commission (FTC) and US Customs neglected to properly determine before attending was that Island Princess had but two telephone lines of which one worked some of the time and the second worked less often. Each of these 'spies' from the enemy camp had a superior or two or three chewing their fingernails back stateside anxious to have firsthand reports on what was happening 'in the islands'. Additionally, even the non-spy attendees had folks 'back home' waiting to hear what was happening.

Cal Piper's one and sometimes two outward bound phone lines quickly developed a waiting list - often several hours wait until someone staying there could get a call through 'stateside'. I will admit here that for the first few nights, we assigned someone to 'monitor' (listen in on) the calls which was an immense help in identifying individuals (room number, name) on hand to 'spy' on the event. Not that we could do anything about it - except to alert Steve Bepko (and other presenters) who the folks were that were reporting back to Philadelphia, Washington or Fort Lauderdale (customs) on a routine basis. One of Shaun's camera persons spent an evening videotaping the sound of some of these calls (Skatfeld, after checking the local laws, advised us, "there is nothing illegal - *here* - about eavesdropping!"). My notebook was reaching overload status.

Bobby Kaylor. A strange 'dude' from Arkansas who had appeared in year two of the industry as one of the Arkansas 'Satellite Mafia' with seemingly his finger into every aspect of home dish systems from antennas to receivers. He had a totally unstructured, Arkansas bred, lifestyle - a good old boy equally at home using an outhouse or a five-star hotel toilet.

"I have the ultimate answer to Videocipher," he began to me on my home telephone, only days prior to the first Summit session. I suggested

he explain it to me.

"A completely stand-alone receiver - yes, a Videocipher unit - which cannot be turned off. No matter what they do. And it receives all of the services, whether home dish or cable, and including some that are private for special clients."

I suggested he get his butt down to Provo, early, and demonstrate it to me.

"I want time on the program to explain my system - which is called 'The European Chip'."

Even the sophisticated X-ACT mod-chip had its limitations - for example, as good as Grotsky's X-ACT was (to that point, the Cadillac of all chips), there were some channels it would not decrypt. If Bobby had 'all' of the channels, 'all of the time', it would seem to be the unit I wanted to toss into the face of GI's Ron Putnam.

He arrived one day early, promptly went to my WIV cable and broadcast studio, hooked up his receiver and sure enough, displayed every channel then encrypted by Videocipher. Grotsky, also on hand because he lived on Provo, was suitably impressed. But not convinced. Ed to me after Kaylor put his receiver back into a box and adjourned to sample Provo's night life:

"I believe I know and understand Videocipher better than anyone in the business, including Kaylor. There is something wrong here. What I need is 30 minutes with his receiver, alone, to work out what he has done. It is *not* as represented."

I trusted Ed G's perspective, totally. But it would take me 12 days, one day past the close of the third Summit session, to manage to get my hands on the 'European Chip' receiver long enough for Ed to force it to dump its memory chip onto his PC screen. In that interim, Kaylor would repeatedly use the telephone in my kitchen to make 'mystery calls' to a number in Puerto Rico; a number that would (later) turn out to be GI's ex-M-A Com plant.

The mystery behind the apparent 'bullet proof' decoder Bobby Kaylor hauled with him to Provo for the Summit was in fact just another clever sham. For several hours he held forth on stage doing everything short of pissing into the decoder to try to make it quit. He shorted pins together on various chips, repeatedly unplugged the power and then restarted the unit, openly entered a number of codes which everyone attending knew sent a receiver back to 'factory default settings' and through all of this torture the decoder kept on trucking. The best minds on hand, including Bepko and Grotsky, were brain-stumped. Kaylor even allowed Bepko to personally sabotage the decoder with his

own hands, fingers and test probes (Kaylor admonished Bepko, "If you can shut it down so I cannot restart it, it is yours!").

To make the situation more confusing, Kaylor refused to talk about 'selling' his technology, chips, or anything related to personal self-enrichment. He apparently was not on hand to rake in the gold - or so we were led to believe. In fact, very quietly and without creating a stir, I would post-Summit discover he had been approached during the event by some undercover GI employees attending, and offered the opportunity to 'demonstrate your unit to the folks in Philadelphia'. Cagey as Kaylor was, he wanted not insignificant dollars up front before walking into a sting-trap in the City of Brotherly Love. In other words, what he had was for sale, but in his mind, the easiest and safest sale would be to GI itself. He definitely had their attention.

He never got that far. In a moment (an hour, in fact) of carelessness the day after the last session closed, he left the receiver sitting on my kitchen table while rushing off to purchase souvenirs of the island. Grotsky and I pounced on his Videocipher unit the minute Patti drove off with Kaylor in the car.

Here is what Ed found.

Down in Puerto Rico, as each Videocipher was completed, it went to a testing station where technicians would verify that it was functional; a form of quality control. But to actually 'turn on' each unit, its' unique addressing (serial) number would have to be added to the satellite data stream back in San Diego. So - rather than shuffling a constant line of 14 digit/letter code groups back and forth over a 3,000 mile connection, M-A Com had worked out an alternative. Each week, a new set of 'test number groups' were added to the data stream and as the Videociphers reached the test station, one of these number sets was (temporarily - for test purpose) entered into the unit. It was, in fact, 'factory cloning' - a shared group of numbers valid only (they thought) inside the factory.

Here comes a new unit fresh off the production line. Plug it in, connect a 'cloning clip' and temporarily give the unit a new factory-unique 14 digit/letter addressing code. Turn it on, check that it decodes all of the signals it should, turn it off and using a second factory cloning clip, remove the temporary test address and replace it with its original unique address; ready for shipment to Illinois or California and a retail sale.

The test number groups were changed weekly, sometimes more often. But it was possible, as Kaylor had demonstrated, for a Videocipher to simultaneously retain two addresses - one unique to itself, and the

second, hidden away and not apparent; the test code sequence. When he was using my kitchen telephone to call Puerto Rico, he was verifying the test number groups in use that day. Then, using the same technique and technology as the factory, he was introducing the factory address to the unit used for his demonstration.

When Bepko, Grotsky and others witnessed his public demonstrations, they never saw (and he never revealed) the existence of a second address, hidden in the memory chip. So when he shorted chip pins, turned on and off the power, even disconnected a backup battery which everyone understood allowed a Videocipher to retain critical memory in the event of a power supply failure, all he was doing was erasing the unit's factory assigned address code. Meanwhile, still hidden and still functional, the factory test sequence code was standing by ready to produce descrambled television the instant the unit was turned back on when the power was reapplied.

Grotsky found all of this in about ten minutes time, causing me to then recall how Kaylor had been using my telephone daily to call long distance (Puerto Rico, as it would turn out, when my itemised telephone bill arrived a month later, but not known to me when Kaylor was making the calls).

Clever Kaylor never went to Philadelphia to meet GI - perhaps that saved him from jail. When he returned to collect his unit, Grotsky and I sat at the end of my kitchen table smiling. After some small talk, Ed handed him a slip of paper with the in-residence factory test authorisation code written down.

"You looked!" he spurted out. We had indeed, "looked."

"This isn't really me - I'm just a front for some English guys!!"

Time would prove that to be a correct statement - with one minor modification. The 'English guys' were in fact 'Irish guys' but to someone who grew up and still resided in a tiny berg in Arkansas, how do you tell them apart?

Busting the Summit

In the February 25 (1987) edition of CSD - post the summit, I wrote:

"In the final analysis, it comes down to there being two viable techniques and they are cloning and musketeering. Any other variety that appeared at, or was described during the course of the Summit, was a variation of one, or in the case of the European chip, both. By combining the features of cloning (through a hidden master-master unit) with the features of a musketeer, you end up with several different 'marketplace varieties' that allow sellers to make their own 'unique claims' for their products. But the vulnerability of the chip to anti-clone or anti-musketeer countermeasures originated at the GI authorisation center does not change. In spite of the 'extra wrinkles' added by clever marketers of chips, the basic chip functions remain the same.

"Is there a stand alone box that truly works outside of the Videocipher authorisation stream? The answer clearly seems to be no, at this point in time.

"Is there a stand alone box at some future point? GI is betting the answer is no, and while clearly embarrassed by the musketeer/clone advances to date, remains confident that no such clandestine box will appear in the marketplace, soon."

At the time, I did not believe it was possible to make the truth any bolder than this. Two techniques, subject in fact to countermeasure attacks by the GI authorisation center, worked - but neither was more than a minor annoyance to GI. In effect, I was reporting that GI's Videocipher was, "bent - but not broken." It was therefore to both my

amusement and surprise that early in March GI would bring $5,000,000 'civil lawsuits' against Shaun Kenny, Karen J.P. Howes (Shaun's on-air partner on Boresight), Dr Stephen Bepko, and yours truly. Of course one ignores any lawsuit with peril and the minute you take steps to even answer a lawsuit, the money clock is ticking in the office of an attorney. We'll return to this event, shortly.

We held the Summit, saw the latest and 'best' the pirates had to offer, and the bottom line was, because of the Summit, GI had a once-in-a-lifetime opportunity not only 'see" it all, but to 'analyze' what was threatening, in one spot at one time. There is no way they could have collected it all in one dreamworld location complete with the creators/backers of each system no matter how much money they might spend. 'The Summit' did it for them.

Yes, there had been clone and musketeering breaks. Yes, each was a weapon in the hands of the industry against GI's system. No, none of the 'breaks' were going to put GI out of business. In fact, the sum of the breaks was going to accomplish something they could not do on their own - encourage the sale of several hundred thousand Videocipher modules and Videocipher compatible receivers. And, lead them to being able to introduce Videocipher Two + as a replacement in a few years time which would, finally, be largely 'hack proof'. The Descrambling Summit, then, put them in the Videocipher business. Given the option of Ed Grotsky, Bobby Kaylor and others who appeared at the Summit with mod-chips to charge, they elected to name four people in their lawsuit - three of whom were journalists and the fourth they would ultimately 'excuse' in return for his assistance in defusing the clone and musketeering chips. Was there a pattern here? Of course.

GI, following the M-A Com Harvard MBA introduced 'business plan', was playing to the marketplace, not to truth and integrity. But they were clearly distressed by my reports in CSD, and, the Boresight video reports created by Shaun and co-hosted by Karen J.P. Howes. 'Truth' was not something they wished distributed. Taylor Howard helped M-A Com/GI reach their lawsuit decision when he agreed to brand Shaun Kenny (and Boresight) as 'outlaws' and proclaimed they would forever be banned from attending any future trade shows. The messenger was being cited for crossing over the line and creating news, not merely reporting it. GI now had at least Taylor on their side, another nail in the coffin of 'Yellow Rain'.

A number of piracy firms, appearing at the Summit, introduced varieties of 'mod-chips' which did specific functions. Here's a surprise. Not one of the chip makers ('exhibitors') sold, at the Summit, over

three separate consecutive sessions, more than 100 'chips'. That is less than one chip for each 3 paid attendees. As a business function, the Summit was a bust, even for Ed Grotsky. Several of the chip makers rose to program presentation prominence at the Summit, and died on the spot. Only the Bobby Kaylor 'European Chip', which turned out to be a scam, met the standards required by GI for serious negotiation. Of course when we worked out the European Chip 'scam', the Summit was over but the truth would appear in the next issue of CSD and prior to that on Boresight and the Scramble Fax Hotline telephone service. Each of the three groups had their own 727 Fort Lauderdale origination flight, and return (January 14-16, 16-19, and 19-22). The first group was sold-out, and had to include a number of GI/FBI/Customs and Immigration 'coverts'. These folks would attend, return to Fort Lauderdale to prepare their written reports which would become a 'task force order' against those who would return to Fort Lauderdale on January 19. Group two was a 'target' and there would be hell to pay.

January 19th, 6PM, Fort Lauderdale International airport. Approximately 105 people, including wives and children, return on a chartered flight from Provo. Martin Luther King Day in America; a holiday. On the ground, waiting and not terribly pleased to have been called out to 'special duty' on a holiday, several dozen agents from US Customs, immigration, and the FBI.

John Zelenka, a New York satellite dealer, wrote to CSD:

"I was an attendee at the Descrambling Summit, having been a dish dealer since 1980 and have participated in a wide range of industry events including the trip to Sri Lanka to meet Arthur C. Clarke. I consider myself a pioneer in every aspect of this word and have learned through Coop's seminars and publications how to survive.

"I am not quite sure why I attended the Descrambling Summit; perhaps it was the opportunity to actually visit Providenciales after reading Coop's reports for seven years. Or, perhaps it was because scrambling was another mountain to climb. Perhaps it was because it was mid-January and in my home in New York City we were up to our eyeballs in snowfall.

"Because I was in the front of the line returning through US Customs on January 19, I was one of the first to be detained. I was the fellow who got into an argument with customs over a bottle of liquor and a necklace purchased on Provo. And I was the fellow who, once through Customs, rushed to the nearest telephone to alert every news media organisation I could find in the yellow pages. I had watched in

complete disbelief as a satellite dealer from Florida was manhandled by aggressive customs people and badly mistreated. I witnessed and understood his anger and frustration because he, evidently like me, believed that the US Constitution was a viable, living document and that the individual liberties of citizens was paramount to our citizenship. The official people were arrogant, discourteous to a fault, and acted like the Gestapo. Here the returnees were, dressed in T shirts and jeans, some with a three day beard growth, facing an army of federal employees who plainly believed they had uncovered the most hideous group of smugglers in the history of our nation, who if not stopped forcibly were going to undermine the republic! It was overkill to the tenth power.

"The attitude and demeanor of the customs, immigration and FBI folks was straight out of a SWAT-team movie. They pounced on these folks with accents representing the plains of Texas, the hollows of Kentucky, the suburbs of Chicago as if each was carrying millions of dollars in cocaine. The dealers, the wives, even the children were abused by gun toting, threatening folks who did not speak to you - they yelled at you as if you were first-day at Army boot camp; instructions that if not immediately obeyed resulted in instant physical abuse.

"The dealers and their families of course had anticipated nothing of this heavy handed response, they were frightened, and understandably uncertain how to respond. I knew what to do - alert the news media and then stand by just outside the custom's and immigration clearance hall to watch what happened next.

"What I saw was people with badge-power running amuck. Agents grabbed suitcases from returnees hands without even asking to see the contents, slashed open locks and retaining straps and then with some misguided glee proceeded to dump the contents helterskelter on the concrete floor all of the time shouting things like, 'Where are they??? Where are those chips???' Here we were, the literal backbone of a what might be the very last true-American home-grown industry, being subjected to the indignities of an overzealous and totally uncaring federal police force who somehow equated our trip to Provo with smuggling and our home dish industry with those shady characters who run up and down the coast line of Florida with 100mph Cigarette boats. I truly was moved to cry, on the spot, and I am not an emotionally moved individual. As a veteran of the industry, someone who travelled as far as Sri Lanka to meet the fabled father of satellites Arthur C. Clarke, I pondered how the great man might have reacted if he witnessed this ultimate and perhaps final chapter being written in his

dream for world-wide mass communications via satellite. Where, and how, did it go wrong???"

Fast forward to 1998, long after the Fort Lauderdale raid. The scene is a small privately owned business in Georgia, run by a man named Tim Heinrichs. He, like Zelenka, had spent many years in the home dish industry. He remarked to me in 2003 when we again met, "You (Coop) were our hero. You stood up to the forces of evil that tried to put us out of business, that tried to create for themselves a world without home dish systems."

Heinrichs had somehow, against all odds, survived between the 1987 Fort Lauderdale federal police raid and 1998 as a distributor of satellite TV hardware. He wrote to me in 2004:

"In 1998 I was purchasing virgin DirecTV access cards from the original source, Hughes Electronics, and reselling them for a mark-up smaller than Hughes charged. I was doing exactly what Hughes was doing - selling cards to potential users and as I was purchasing the cards openly from Hughes, there was nothing secret about my activity nor who I was. NDS, then the smartcard's internal software language provider, brought federal lawsuits against me for this activity. As it would turn out, for more than a year they had been tapping my telephones, intercepting my e-mail, opening and inspecting all inward bound shipments to my business (DMS International) without my knowledge. They sued me with the open intent of ruining me financially, even though (as the court would later agree) I/we never 'touched a card' (i.e. in any way modified or corrupted the NDS created card contents), nor had we ever bought or otherwise acquired any hardware of software for hacking (of cards). It cost me more than $250,000 to defend myself and my business, to prove my innocence and I would certainly not go through that 8 months of hell again. If Hughes or NDS had ever contacted me, come to me, to raise objections about my virgin card sales activity, I would have immediately ceased card sale operations and sought legal advice. And even if, as it would ultimately turn out, I was doing nothing contrary to law, I would have permanently stopped what for us was a minor and insignificant segment of our business activity.

"During the course of the 8 month long sequence of events in and out of court rooms and law offices, one of the lead attorneys working for NDS took me aside and with an obvious sneer on his face, dressed me down. *'All satellite dealers are pirates and sooner or later we will get everyone of them.'* I took the statement at the time as bravado, until he returned later in the case when things started going my way to suggest,

'If you stop selling all satellite products, we will drop the charges.' Success, to NDS and their lawyers, was obviously measured in the number of home dish dealers and distributors they forced out of business.

"The one thing I learned is that legal or illegal does not matter, right or wrong does not matter. When you are sued by a firm with the resources of NDS, it opens up a big hole in your bank account. Money starts flowing out at an alarming rate and after 3 or 4 months, your only focus is on closing that hole."

Heinrichs had no other business than 'satellite' equipment sales. Had he agreed to stop selling 'all' satellite products, he would have been agreeing under duress to go out of business. What the customs, immigration and FBI agents were practising at the Fort Lauderdale Airport in January 1987 was but the warm-up game to put a total and permanent end to the sale of (C-band) home dish systems in America. In Heinrichs' case, he was tangling with NDS's influence through majority stockholder Rupert Murdoch who had a direct line into the White House.

Returning to Fort Lauderdale and the fateful January 19th return flight from Provo, numerous returnees (including Zelenka) were individually told by hard liner customs and FBI personnel, "We are going after that guy Cooper and the fellow from Baltimore." They meant Dr Steve Bepko. Word of the raid reached Provo within an hour of the Fort Lauderdale flight landing and as might be expected, panic ensued. Most of the reports were borderline hysterical citing personal abuse inflicted on attendees and their families. But one statement made to an attendee by a customs agent caught my attention. It went something like this:

"The chips we are recovering contain copyrighted computer code that belongs to General Instrument. Therefore they are a violation of copyright law and we shall hold them for further examination."

Upon hearing this report, I rounded up Grotsky from my son's bedroom, where he was updating his computer files, and headed for Attorney Skatfeld's home where he was entertaining friends, repeating the message from Florida. Skatfeld went straight to the core of the matter:

"Ed, how much of the remaining code in an X-ACT chip is in fact their original code?"

Grotsky admitted that as much as 95% was originally created by M-A Com. He explained, "What all chip people do is to modify the existing code with new additions and in some cases, we remove code lines which conflict with our purpose."

Skatfeld. "I am not as versed on US copyright law as I wish I might be at this moment. But my recommendation is that we go a step further than advising people not to take chips back home with them for the next (third and last) group. Simply tell them that until this question is answered, no more chips will be supplied."

He then agreed to chair the first session the following day to, with my help, bring the attendees for the final seminar up to date on what happened in Fort Lauderdale, and explain the legal position which GI might in fact have. The response from those attending would be less than pleasant.

"I came here, spent $1,400 to do so, and was promised four sample chips. I want my money back!"

Meanwhile, in Florida, customs and FBI investigators were spending their January 20th trying to find evidence that the chips which they had confiscated from the group the prior evening were worth something approaching $300 each. US citizens returning from an overseas jaunt were allowed to bring in up to $700 in 'purchases' without payment of a customs surcharge but four chips at $300 each would be more than that. At the very least, if they could substantiate $300 per chip, they had each of the returnees for failing to properly declare the 'true' chip value.

Clare Skatfeld had warned me about this early on and when we distributed the chip packets to attendees (after advising them to turn them into the Island Princess desk for remailing) a slip of paper was included showing the 'chip value' to be under $5 each (actually, $4.20); basically, the 'raw value of a blank chip' without assigning any dollar value to the code content.

Picture this. As John Zelenka and other front-of-line folks encountered the SWAT-team mentality of the enforcers, those further back quickly worked out that chips were the object of search. Zelenka had none, so they pounced on him for his bottle of Provo liquor and a necklace even though he had reported them on his customs form. Some returnees had brazenly kept their chips on their person or in their baggage and the customs folks, overseen by FBI agents, knew exactly what they were after. Those who had none with them simply said they did not when asked, but that only incited the customs folks to rip open bags and dump the contents on the concrete floor with some ceremony.

Those with chips, further back in the line, went to a panic mode. A television news report triggered by Zelenka's telephone calls plainly displayed chip remnants spread throughout the area following the raid

(Customs would later claim 341 chips were recovered). Attendees tried to smash them with their foot, crush them with their hands (an act of desperation because a computer chip has dozens of very sharp, strong metal 'legs' which if nothing else become miniature knives when you attempt to crush them bare handed) or bury them in their pant's cuffs.

Custom's first line of attack was their supposition that chips valued at $300 each exceeded the allowable 'duty free' limit. When the Clare Skatfeld mandated 'Chip value slips' of paper were produced, Customs quickly decided the paper value was a sham and began intense questioning of the returnees.

"How much did you pay for this trip?" they demanded. We all know the answer, by now.

"What did that include?" It included airfare, lodging, all food, ground transportation, bar drinks.

"And chips???" demanded the customs interrogators.

"And chips - around $5 each," was the answer.

Airfare in those days to Provo, using PanAm, was around $500 return flight included and this provided the Custom's bean counters with a starting point when the broken chip dust had cleared the next morning. Three days and nights with 3 daily meals at the Island Princess amounted to another $600 and now they were at $1100 out of $1400 paid. Add in ground transportation and bar drinks - well, even to Customs it was quickly obvious the chips could not be valued at $300 each. Which forced them back to GI's 'secret' plan 'B' - the copyright on the chips.

GI had several of their hired attorneys on hand to give tactical advice to the FBI and customs folks conducting the search and seizure - two of which, it would turn out, had been in the first group to attend the summit. What they hoped to do was collect 'signed confessions' from some of the more vulnerable returnees admitting they knew their trip to Provo and the chips were somehow 'illegal'. They also searched for and confiscated both audio and video tapes some attendees had made during seminar sessions - in the hope that these would provide direct evidence of the illegal activities of folks like Bepko and myself.

At 9AM on the 20th, FBI, immigration and customs surrounded the office of Airport Travel and our adjoining Fort Lauderdale CSD facility, still managed by overstayer Carol Graba from Scotland. In they went brandishing warrants that allowed not only a full search of records but a demand that a complete list of the attendees be turned over from the travel company. These lists would subsequently be broken down and redistributed to regional offices of Customs and the FBI, and virtu-

ally every person who had given an accurate 'home address' or credit card number in the records would eventually receive a personal visit from a field agent. Only those who had made their own PanAmerican reservations, or who had arrived in private aircraft, escaped the 'hit list' aftermath.

This was the start of an intensive six week sting which sought to determine if any federal laws had been broken. If yes, criminal warrants would follow. I'll cut to the quick here; no federal warrants were issued, against anyone. But, and this bothered me at the time as much as it still does today, all of the 'evidence' collected was boxed up and turned over to General Instrument and became fodder for their civil (as distinct from criminal) lawsuits to be filed during March against Howes (ladies first), Kenny, Bepko and myself. We'll return to that incident, shortly.

After my group announcement that there would be no chips distributed, we worried whether the last group returning (January 22) would go through a similar experience. Of interest, when the last folks did arrive in Fort Lauderdale, they were assembled in a room and read a statement from a Customs official. He warned, "We are advised you have no computer chips with you. If we do find chips, it will result in your immediate arrest." There were no arrests but selected one-two-three hour long questioning sessions were conducted, causing some delegates to miss their return-to-home plane connections.

A handful of last-session folks convinced themselves that returning, on the charter, was a foolish risk and on their own they purchased Pan Am tickets. This 'option' had been quite openly discussed during the third session, and just as Customs already knew that nobody was likely to have chips on the charter flight before they landed, they were also out in force to intimidate all Provo origin passengers as the commercial flight landed in Miami January 23. Each was asked, "Do you have any illegal scrambling devices with you?" as a part of their return to USA exercise.

Steve Bepko and family had left Provo a day early (the 21st), on Pan Am to Miami, and Customs (and GI) had also been forewarned of this, we thought, clever bit of rescheduling in advance. As Steve and family went through Customs, a senior officer addressed him by name: "Dr Bepko, we would like to speak with you..." which they did for more than two hours; the first of more than a dozen such sessions to follow.

Bepko: "They wanted to know how I was paid for my appearance, what it was I spoke about. Ultimately, I gave them what was essentially my full Provo presentation. They also were asking how the Summit

was organised, who 'got all of the money' and what help I might be in identifying the individuals who brought chips there for sale. At one point I asked them if I was being arrested. Their answer - ' If we had planned to detain you, today, we would have begun by reading you your rights'."

Another individual, Bill Miller who was employed by Shaun Kenny's Boresight TV program, was not read his rights. Hauling 61 3/4" video-tapes, shot during the event, Customs confiscated his full tape supply. Boresight through an attorney immediately filed a First Amendment (Freedom of speech) complaint and after five days the tapes would be returned. In that period, all had been duplicated by Customs at Government expense and then ultimately the duplicate tapes were handed over to GI for their civil lawsuit prep.

In many ways, the third and last session was the most diverse of all, given the detaining of group two returnees in Fort Lauderdale. First, it brought home that GI and perhaps US agencies such as the FBI were not going to simply roll over on this one.

And, there was anger.

Third session attendee forum question: "The most simple change in the EPROM program resulting in a working, modified chip is a 12 byte change that gives you a 3-Musketeer program. Suppose that 12 byte change was released into the 'public domain'?"

An interesting threat, possibly giving the remaining GI 'spy' in attendance a momentary heart palpitation. Translation of the suggestion. At this point, only a very small number of people knew 'the secret' 12 bytes (numbers or letters to modify) in a VC2000 memory chip to cause the device to explode from a paid-for-group of channels to a complete set of channels with the new ones not paid for. If this knowledge was released (remember - 'the web' was hardly more than an educator and military tool in 1987) to 'the public' - public domain as it were - then virtually anyone with a modicum of skills could do their own '3 Musketeer' upgrade to an existing GI decoder box. The suggestion fell into the 'retaliatory' arena - "If GI is going to chase us to our homes with federal search warrants, then we'll give them a major shot across the bow!"

This was January 20th, the morning after the Fort Lauderdale Airport raid. Tempers were flushed, and Clare Skatfeld had done some quick boning up on US Copyright Law overnight.

Skatfeld to attendees: "I cannot counsel you on releasing your code - for it is 'your code' if it was created by you or by someone outside of M-A Com or GI. The chances that you can copyright these 12 bytes is

small for it is as I understand it only 12 bytes in a million-plus byte universe. And neither you nor anyone sitting here holds the copyright on the balance of the bytes. But I must caution you that this is a brand new area of copyright law, an untested by courts area of law, and if you do enter into a tit-for-tat response you may be doing nothing more than signing on to become a pioneer in court to test the laws as they now exist."

Clare had one more warning.

"It is little known by those who believe their civil rights might be violated when US Customs taps you on the shoulder, but here are the facts.

"First, Customs has unique powers. They have the legal right to seize anything which they suspect might be associated with the importation of contraband material. A DES modified chip would probably pass this test as contraband. Further, they have the right to hold onto such material(s) for up to 30 days, after which they must either return the goods or destroy it if they are willing to cite it as contraband. Second, unlike virtually any other federal agency, Customs does not require a court order to authorize search and seizure in your home. They can knock on your door, demand (and gain) entry and search to their heart's content. When dealing with Customs, your home is not a sanctuary requiring court issued search warrants to breach. Third, Customs has the legal authority to detain you for an unspecified period of time - essentially for as long as they wish - for questioning. Yes, after days or weeks you might get an attorney to file on your behalf a demand that you either be charged or released but the history of Customs reacting to this demand is murky at best. These are not folks to mess around with!"

All of this would be reported back to Fort Lauderdale by one or more 'spies' in the audience before the last group deplaned there. Even Canadian Skatfeld, on his (months later) next trip to America, would be questioned - he had plainly made their 'A list' by being forthright and detailed with his well researched advice. He was not alone. My sixteen year old son Kevin, returning to Miami on PanAm a month after the Summit, found himself answering questions as well. Oddly enough, neither Patti nor I would ever be stopped for more than the normal "Welcome home" greeting.

The 'fun' was almost over.

Post Summit

By the end of February, most of the dust had settled. Those who had chips confiscated by Fort Lauderdale customs had, for the most part, received both a personal visit and later a small brown package with their confiscated chips intact. The chips when put to use still functioned, just as they had on Provo and yes - this was a mystery because of the GI 'copyright of bytes' matter. The attendees who had elected to have their chips returned via post 'from a Caribbean country' eventually did so - postmarked from Puerto Plata, the Dominican Republic, a favorite 'watering hole' of one Ed Grotsky. Those who were not given chips during the final and third session also received their chips via the same circuitous routing.

Boresight was now the most popular weekly activity of the stragglers still somehow functional in the C-band home dish industry. But Taylor Howard, the hold-over chairman for the newly merged ex-Space and DBSSA (a 'direct broadcast' group with plans for the eventual DirecTV operation), was doing everything he could to distance his 'new (resurrected from SPACE ashes) trade association' from those 'outlaws' who watched Boresight, subscribed to CSD, or dared to speak the name of either in his presence. GI, on the other hand, was enjoying a tremendous boom in VC2000 and H1/T1 sales and while Taylor and others tried to put the best possible face on the upturn in business activity as, 'new proof of the long term viability of home dish systems', everyone - even Taylor - knew that it had been the 3-Musketeer and cloning breakthroughs that were driving the growth. However briefly, money clips filled with $100 bills had returned to America's home dish world. There was a small, hardly measurable, upturn in new system

sales but unfortunately the only real sales were for folks upgrading to Videocipher compatible equipment.

But for me, it would be too late. My train was running out of fuel.

Back in January 1985, CSD had featured on the front cover SPACE's at-the-time high-riding General Counsel Richard L. Brown, posing in his backyard next to a 12 foot satellite dish with a 12" monkey wrench suspended by his right hand above his balding head. Inside the same, in my 'Coop's Satellite Comment' segment, I had written about a fellow named Jimmy Long who owned and operated Long's Electronics (Inc.), Birmingham, Alabama.

What caught Jimmy's attention, and later would drive him to bring a civil libel suit against me and CSD, was this statement:

"Jimmy Long simply provides a conduit through which the overstocked, the slow to move, and the downright junk can be flushed. If you lived on a farm and you had a septic tank, you'd be in a world of hurt if somebody wasn't willing to come along and empty your tank every now and again!"

For as long as there had been a CSD, I routinely paid a libel insurance fee, backed by a name-brand insurance company, which basically insulated me from crazy folks who might find something I wrote unpleasant. Libel is an interesting area of law - and the responsibility for what you say and can be 'held accountable for' has changed over the decades. In 1985, it was this. If I wrote something that insulted someone, they first had to prove I did so, "with malice" and "with full knowledge that what I was writing was incorrect". But there were exceptions to this - for example, 'Editorial' presentations - an opinion as it were - are largely exempt from libel. The First Amendment allows you (and I) to have an 'opinion' and as what I wrote about Longs appeared in my 'Coop's Satellite Comment' portion of CSD, it was quite clearly an 'editorial opinion'.

Jimmy Long sued me, seeking $5,000,000 in settlement, because he maintained my editorial characterisation of he and his business was inaccurate and a direct attack on him personally. He also believed that although his business operated under his own family name (i.e. 'Long's Electronics'), he personally was not a "public figure" and as such, my 'editorial comment' transgressed his "privacy as an individual."

Obviously a complex subject, not your average court case. Fortunately for me, the insurance company carrying my policy immediately sprang to my defence (as well they might - if we lost, I'd pay ten percent and they 90% of any awarded damages) and assigned libel-

savvy attorneys to defend me.

The crux of the case was this. Was Jimmy Long a wholesale distributor of satellite hardware who sold only to dealers, as he repeatedly told the court, or was he a retailer hiding behind a wholesaler disguise? I found numerous name-brand expert witnesses who testified Longs routinely purchased close-out (new but unsold discontinued product) stock and then sold it to anyone who had enough gasoline in their pickup truck to back up to his expansive Birmingham loading dock.

The case went into a Federal District Court in Birmingham. Fellow publisher Doug Brown would testify that he had discontinued accepting Long's (lucrative) advertising because, 'real dealers' were complaining that Longs sold to anyone presenting a resale tax number (which was available by completing a simplistic form). Brown said, "Jimmy (Long) has been very irate over our refusal to accept his advertising, and pleads he was not in fact selling 'at wholesale prices to anyone who asked for and received a business resale tax number'." Longs Electronics was, in my editorial opinion, buying old equipment which a manufacturer (such as KLM was replacing with newer equipment and closing out at a factory-clearance price), and then reselling the equipment to anyone who even pretended they were a bona fide, properly licensed dealer.

Jimmy Long told the court that in the 12 months from January 1985 (when the 'Comment' appeared in CSD) to January 1986, his sales volume had fallen from $48,950,000 to $39,409,710. He blamed that drop on my 'Comments', and this was the basis for his $5,000,000 claim. I must point out this was the same 12 months when the satellite industry sales dropped by more than 25% - thank you, Videocipher. His 20% drop was big, but ahead of the rest of the industry by a not insignificant 5%.

However, this fact was not the defense mounted by my insurance carrier. The court took all of this on board late in 1986, and on March 2, 1987 ruled in response to a 'Request for Summary Judgement' filed by my insurance carrier attorneys:

"In attempting to balance the reputation of individuals and businesses against the First Amendment rights of those who publish their views as 'facts', the court must not allow a well known business and businessman to prevent comment on certain business practices within the limited publication found in this case. To do so would prevent the dissemination of information and thought within an industry which has a direct bearing upon a media reliant public."

Because he brought the suit, and lost, Jimmy Long was required to pay the court costs, my attorney costs, and the judge dismissed his

suit. End of story? Not quite. Jimmy was still 'mad as hell' and as his business continued to decline, he somehow believed my Coop's Comment had done him in. He would refile the case a second time in 1988. And he would lose again, a subject we shall revisit.

My euphoria was brief - 3 hours to be precise. At 5PM I heard the Birmingham judge had ruled in our favor. At 8PM, word from Las Vegas (where Taylor Howard's new SPACE-replacement trade association was holding their annual spring show) that General Instrument was filing its own $5,000,000 'civil' suit against me, Bepko, Karen and Shaun. The lawsuit resulted from GI's frustration that even after detaining Summit attendees in Fort Lauderdale, sending Customs and FBI agents to more than 200 homes nation-wide at Government expense, and grabbing the records at Airport Travel along with the videotapes shot by Shaun Kenny's folks during the 3 Summit sessions - the US Government was declining to bring a criminal suit against anyone. Me included.

In the January issue of 'Satellite Direct', a ho-hum mandy-pandy 'who can we suck off today?' kind of publication, GI employee Doug Lindquist told the audience, "Perhaps what GI needs to do is to make an example of somebody, like they did with Captain Midnight, as a warning not to screw around with Videocipher." The same publication reported Taylor Howard forecasting, "The demise of Videocipher will lead to the total demise of the industry."

Excuse me. Was that not precisely what I had been warning for more than two years - that if the Videocipher encryption system was defective (as in being hackable), what possible good would result from allowing it to 'pass muster' - to be accepted as an encryption standard when we all knew that sooner than later, some bright Canadian person would hack it up into tiny digestible bites? What was Taylor saying here?

Perhaps he meant to say but did not have the fortitude to clearly enunciate: "OK, so it is a piece of crap encryption system and several different approaches have breached it. But please, in the interest of industry growth and harmony, everyone who has defeated Videocipher must now keep their hacks private and off the market because if you don't, Videocipher will die and our industry will die along with it!"

Easy for Taylor to promulgate - his Chaparral had taken in more than $50,000,000 in net profits over the years and if he left the business March 3rd, his personal fortunes would not diminish one iota. At this point, he was in it to polish his pristine Stanford Professor turned microwave entrepreneur image; he was on an ego trip. But guys like

Bobby Kaylor, Bob Maniachi, and Gus Wirth were still humping to collect enough debris from the collapse of their individual home dish businesses to survive.

Alas, my disagreements with Taylor over 'right and wrong' would not resolve anytime soon and in fact they were personal, and not likely to have any real effect on the now mercurial home dish industry.

The suit and suitor

In March 1987, it was the 'popular' thing for the surviving members of the trade press to side with GI because almost nobody else was left as a potential advertiser. If GI said Videocipher was a success, without questioning their statements it was so reported. And when SPACE - the trade association - collapsed in imminent bankruptcy to be rescued by a second trade association that had money but no purpose to exist, they searched for a figurehead to keep the shotgun married couple at a high level of public view. One of the first things the new combined organisation, known as SBCA, did was rearrange their structure to allow HBO and other programmers to sit on their Board of Directors. Gone were outspoken entrepreneurs like David Johnson of Paraclipse and behind the scenes string pullers such as James Rothbarth. What was left were guys who wore grey flannel suits led by a bespectacled former middle rung professor from Stanford who just happened to be a multi-multi millionaire. Without firing more than a single 'scrambling shot' the cable TV folks had put both the satellite TV industry and the trade association out to pasture. For good measure, they would now turn their corporate attention to burying the only remaining critics of their activities - Shaun Kenny's Boresight and my Coop's Satellite Digest.

Even their handling of the high PR value 'news' that a civil suit demanding $5,000,000 in 'damages' from Shaun and I was done with the same carelessness that had been at the root of M-A Com's creating Videocipher in the first place.

From the announcement that M-A Com was selling out to GI, until their March 2nd public announcement of the suit, I had been working overtime to tie together for print my growing belief that the M-A Com

sale of the home dish industry products to General Instrument was only a small part of a much larger plan hatched by folks such as cable's John Sie. In working on this report, which ultimately would never be published (until now), I had stuck my journalist's nose into some top and medium level cable system management offices. My working premise was as follows.

First, GI was the modern day version of The Jerrold Corporation, the firm that quite literally invented cable television. Jerrold in the late 40s manufactured a small line of products designed to improve fringe area (regions where TV signals were weak) reception. A small part of their not very large business included creating specialised equipment so that an apartment block or tenement building in a city could place one 'master' TV aerial on the rooftop, and then using that equipment connect each of the apartment units to the common aerial. They called this 'MATV' which was shorthand for master antenna television. The concept was good because as television became a major entertainment medium, a building in The Bronx with 200 apartments was faced with each tenant placing their own rooftop aerial atop the building and then running 200 pieces of wire from one antenna to one apartment. This was not an acceptable option to building owners who didn't really want tenants climbing around on their rooftops to start with. When folks worked out that they could sneak onto the rooftop under cover of darkness and connect their own wire to a pre-existing rooftop aerial placed there by a neighbor, without either telling the neighbor or anyone else, the tenement owners clamped down and told everyone to stay off the roof. In the worst case, this meant some people had TV (those who got to the roof before the ruckus started) and others did not (those who needed to get there but who were now banned from going).

Jerrold (and a few competitors with names like Blonder-Tongue Labs, Entron, RCA and SKL) to the rescue. The firm's founder, Milton J. (for Jerrold) Shapp, ultimately to become Governor of Pennsylvania, had a clever mind and he put salesmen on the street offering to 'clear off the rooftop clutter' if the tenement building operator would agree to the installation of his MATV system equipment.

By locating 1950s era Jerrold personnel, I was piecing together how Jerrold (later GI) became such a cash-fluid company in 1986 that it could cough up nearly a quarter billion dollars to acquire some assets from M-A Com. Word that I was 'digging' quite quickly reached some personnel at GI - folks who already knew me (by reputation) and my investigation possibly was making several folks in Philadelphia nervous.

Milton J. first tumbled to the concept of 'cash flow' when a tenement building owner in the Bronx said, 'No, thank you,' when offered the opportunity to eliminate all but one (master) aerial on his 200 unit building rooftop. The corporate legend I ran into told the story of a tough landlord who could care less whether folks had TV reception - "Let them listen to the radio," was his oft-repeated response. And then as an afterthought, he is reported to have said, "Show me how I make money by doing this, and I will reconsider." The salesman dutifully reported this conversation to Shapp who had one of those once-in-a-lifetime inspirations.

The Jerrold legend has Shapp personally taking a train to New York from Phillie, a cab to the tenement owner's office and announcing his plan to do just that. The conversation, told and retold by legions of ex-Jerrold guys, supposedly went like this.

"I'll sell you this MATV system for half price."

Owner: "How does that make me more money?"

"You raise the rent $3 a month in return for our connecting each unit to the master antenna. You keep $1 of that and we get $2."

Owner: "Make that you keep $1 and I keep $2 and you have a deal."

Ultimately they decided on a 50-50 split. And Jerrold laughed all of the way to the bank because even when Shapp instructed the system installation charge be cut in half, he was giving up but a portion of his profit structure. He still covered his installation costs, made a reasonable (if not outlandish) profit and then from month one onward he would receive a check for $300 from the tenement owner, representing 200 apartments at $1.50 each.

Sometimes in life the big hurdle is creating the concept - which was, in this case, that people would be willing to pay something to have television in their apartment. It was a sweet deal for each time Jerrold sold such a system, the residents were given a short period of time to remove their existing rooftop aerials and be connected to the new Jerrold 'master' antenna. People already had TV, they were not likely to 'go back to listening to the radio' when faced with a $3 a month surcharge to connect to the master antenna so Jerrold and their partners who owned the tenements of New York, Philadelphia, Baltimore and a hundred other cities were shortly - as fast as Jerrold could build the raw equipment and install the systems - raking in hundreds of extra dollars per month. Milton J. Shapp had 'discovered' pay television.

In 1951, the technology behind the raw equipment had so improved that Shapp's mind was envisioning something much larger

than wiring up tenement buildings; entire towns, ultimately, even cities. The first Jerrold equipped town-wide system was installed in Lansford, Pennsylvania that year. It was a high risk venture but what they learned from the exercise was to become a model for the creation of the CATV or 'Community Antenna Television' industry. Shapp's 'partnership' posture with the tenement owners would be his model.

First you located a town where TV reception was poor; there were thousands of these at that time. Then you sent a sales-engineer into the town to identify one or two or three local 'partners' for the venture. They would be responsible, with Jerrold schooling and behind the scenes coaching, for obtaining a 'permit' (later to be called a 'franchise') from the local city government. Selecting the right person or persons was key here - folks who could walk the application through the town council, and in the process, come out as 'local heroes' because at the end of this rainbow, the town would suddenly almost overnight have quality television reception (Lansford had 5 local 'partners', including William Z. Scott, a Pennsylvania State Assemblyman from the Panther Valley area).

Local bankers, the town mayor, the drug store owner or the newspaper publisher were prime targets. And the modus operandi was always the same - the locals obtained the permit using a 'model contract' drafted by Shapp's people, put up some money of their own and Jerrold quietly, in the background, designed the system, priced the equipment, installed the system and - here was the ingenious part - held onto 10 to 50% of the business. Out of a $5 per month fee, Jerrold was rolling in as much as $2.50 per month per home ongoing 'cash flow' income. Yes, of course they made money on the original system as well!

Over a decade, as CATV grew, while some competitors did manage to sell the occasional system, Jerrold walked off with the bulk of the system sales through strategic partnerships. By the time cable TV grew to a million homes connected, Jerrold was sitting in Philadelphia collecting several million dollars each month because 'they had the plan' (see this author's: "TELEVISION - The technology that changed our lives").

The plan was so good, says Jerrold legend, that Shapp worked out a series of aligned but separately held corporations to skim the bulk of these proceeds off for a less public use; his own. But Shapp wisely stayed well in the background, never one to flaunt his own enrichment and careful to keep his personal activities distinct from those of the parent corporation.

Fast forward to the start of the satellite era; the mid 1970s. Shapp's

personal interest were now focused on politics; Pennsylvania in particular, perhaps even beyond. Jerrold had beat back repeated efforts by would-be competitors to supply CATV system equipment through the 50s, 60s and graduates of 'the Jerrold school of cable business' were well placed throughout the cable industry at all levels. Showtime's John Sie was one of these with a 'Jerrold diploma' and he had worked his way from an engineering design bench at Jerrold to the top rung of the cable operations world. Sie would prove to be the smartest of them all.

As previously noted, when I encountered ex-Jerrold's Sie at a satellite trade show in 1984, he was a man possessed with one challenge; how to put a stop to the home dish industry's growth and 'rescue' cable TV from the first (and only) competitor that stood even a small chance of grabbing some of the cable industry's lustre. When his 'private' conversation with me ended up being recorded by Shaun Kenny's video equipment, through circumstances that were more chance than planning, I knew down deep that while I might have 'won this battle', he would be back for a much more intense war. John Sie was a formidable foe, and logic told me he would ultimately win the war.

Sie's plan was to create a strategic alliance which would remove two aspects of home dish growth; M-A Com and the free TV aspect of satellite delivery. My editorial digging revealed that his plan was key in arranging for Jerrold - GI to become the new owner of the M-A Com cable TV industry product line, thereby bringing control of the most important elements in home dish systems under the wing of a cable-oriented manufacturing firm (in the cable world, M-A Com was considered an outsider even before the firm's involvement in home dish systems). If a cable minded firm controlled Videocipher and Videocipher put free access to cable programming out of reach, cable people would have the tools in place to unwind the home dish world one step at a time. John didn't have to be directly involved - once the wheels were set in motion nature would take its course and in Sie's mind, as he confided to a fellow I ran down with my editorial research, "in two years or less there will be no more meaningful challenge from the home dish guys." He believed, correctly as it turned out, that virtually everyone in the home dish world, like SPACE attorney Rick Brown, was staying around because the bucks were quick and the growth phenomenal. "Remove the growth, and most of these people building satellite dishes in Arkansas and receivers in Japan will simply go away." He was, of course, dead right.

So where did cash-rich GI obtain $220,000,000 in liquidity to fund taking over M-A Com's home dish assets and Videocipher?

Remember those tenement houses and partnerships in cable TV systems? Ask no more.

Nobody in cable, least of all GI, wanted this in print (and here I am but outlining what would have been significantly more detailed and concise had it been published in CSD). My original research notes filled seven thick notebooks, hundreds of quotable statements from both retired ex-Jerrold and graduated folks like Sie. So when a GI underling inherited from M-A Com named J. Lawrence Dunham called a press conference on March 2nd at Taylor Howard's first newly recreated trade show to announce a $5,000,000 civil damages law suit against me and three others, my first thoughts went directly to the in-preparation report which I have just summarised. When you go out, as I had done over nearly five months, making hundreds of phone calls and visiting dozens of then-retired folks hoping you can get them to 'spill the beans' on their prior employer, word of my mission had to eventually become quite public. GI knew what was underway and GI was anxious to cut this one off before it reached publication. If the US government's FBI and Customs would not throw me in jail to shut off the expected torrent in print, GI had to take the initiative on their own. The lawsuit was their quick, and dirty, answer.

What followed Dunham's public press meeting at the Las Vegas trade show was a comedy of errors which only accentuated how sloppy and desperate they were to get the lid on this one, fast. First he stood at the hastily arranged podium and told the anxious to crucify fellow publisher Bob Cooper press, "Cooper was served with the papers in this suit today, in Miami." He lied - I was in my home on Provo at the time.

March 3rd - 4th - 5th. No papers although Dr Steve Bepko, co-named, was served at his home on that date. On March 7th, Patti and I flew from Provo to College Station, Texas where we had a two day videotape interview visit scheduled with some archaeologists who were carefully surveying the painstakingly salvaged remains of a 1492-era shipwreck originally located on the southern shore of Providenciales. These folks believed the ship was one of the Christopher Columbus trio of ships (you will perhaps recall the Pinta, the Nina and the Santa Maria). When the well disintegrated remains had been very carefully raised to the surface close to our island, and immediately placed into vacuum containers to prevent further decay from the air, our WIV cameras had been on hand at their invitation. We all shared a wish that with the 500th anniversary of the Columbus discovery expedition looming but 5 years into the future, something could be validated from the wreck to verify its origins. A local group was already creating

on paper a suitable museum where once protected from future decay the remains would be placed on display. For a tiny island with very little traceable history, this one seemed like a major tourist attraction.

The primary tools for 'dating' the remains turned on the identifiable era of things made from early metal, including guns, cannons, and ship fasteners. The next most important area was the craftsmanship of the various pieces - single shot breech loading muskets hand made in Spain, for example, were by design analysis quite different from similar weapons made elsewhere in Europe at about the same time. If it would turn out that the recovered armaments, nails and eating utensils matched archived similar or even identical products in Spanish museums, that would be an important association.

After spending two days becoming totally immersed in their work and findings to date, and recording nearly ten hours of video tape, Patti and I returned to Florida for a day in the Fort Lauderdale office. It was here, on March 9th at 4:20PM, that a paid process server finally nabbed me with my own copy of the lawsuit. GI's Denham never bothered to update his totally incorrect statement of March 2nd that I had been served that day in Miami and the anti-Cooper trade press was largely taking me apart a bone at a time because here, finally, was their opportunity to end my ten year rein as, "the father of home satellite TV."

The best defense is no defense?

The charges were as wide as GI could make them, hoping to snare those charged in at least one and hopefully more transgressions. I read the sheath of papers with bemused indifference and passed them to Patti as we flew back to Provo on PanAm. Our first stop would be to share the document with Attorney Skatfeld on Provo.

"Your first big problem is paying the legal fees to defend yourself. From what I know about your affairs, you can't do that for very long. My advice is cost free, but in the states you will be looking at $200 an hour and up - way up, before you get done. They have designed this to force you to go back out into the world from Provo and obtain depositions from attendees, who are scattered throughout the continent. For each deposition, there will be a lawyer for you and a lawyer for them, a court recorder, and fees. Let's assume 200 depositions and 4 hours per deposition - call it $1,000 per individual or $200,000. And that's before your lead attorney in Miami's charges, and your costs to be at 200 locations. So make that $400,000 even before you get before a judge."

Patti: "In other words they can outspend us by a margin of 50 to 1 or so and long before we arrive in court, we are destitute?"

Skatfeld: "That's how I read this. The charges against you are not the same as those against Shaun, or Steve (Bepko) so each of you is faced with a similar series of defensive depositions to prove you did nothing wrong which was injurious to GI's Videocipher program. And frankly, I'm not sure you can sustain that in court anyhow."

Me: "We can't make this a freedom of the press, first amendment, issue?"

Skatfeld: "You can try - but the cost of that might only have the effect of doubling your costs to get to court. You might try negotiating your way out - what would they most like - and I think I know the answer?"

Me: "No more Coop's Satellite Digest, no more Boresight. We are the last two remaining opposition voices to their 100 percent take-over of the home dish industry by the cable TV folks."

Skatfeld: "That's my assumption as well. So tell them you will stop CSD if they drop the suit."

In fact, when Patti and I resumed CSD publishing in August 1986, we were sent two cardboard boxes filled mostly with scrap paper by Doug Brown and Chris Schultheiss. CSD had fallen from as many as 60 pages of 'paid' advertising to two in the 11 months they ran it, and of course they had cleverly usurped subscription renewals by selling two years for the price of one just before handing it back. At the time, with DESUG getting close to understanding Videocipher, Grotsky approaching shipment of his first X-ACT chips, Patti had done a two year advance cash flow pro forma and convinced me that if we ate less, travelled less, and bought no new 'toys' we should be able to continue CSD at our own total expense for perhaps six months. That would have been January 1987 - ultimately the month when the Descrambling Summit was held.

Skatfeld: "So, Patti, how much money did the summit earn, after expenses?"

She knew to the penny. "$28,101" was the answer.

Skatfeld: "And where is that money, today?"

Patti: "In a special account at Barclays."

Skatfeld: "Then here is my advice. Take $10,000 of that and fly to Miami. I have located an attorney with experience in this relatively new area of law - deposit it with him. Tell him, 'When this is gone - that is it. We have no more.' But before you do that, go home - especially you Patti - and make a full list of everything you still own that is in the United States. If this goes to court, with or without you, and they get a judgement against Bob - the judgement will be quite useless if there is nothing on US soil for them to attach. So take steps to extract whatever it might be to outside of the USA."

Setting aside a few thousand dollars in office furniture and a MAC computer in our still open Fort Lauderdale office, the list would end up being very short. Before Patti and I married, we had mutually agreed to sign a, "what you have is yours - what I have is mine," agreement and as Patti had not been named in the GI suit, this agreement would - Skatfeld assured us - prevent them from going after any stateside assets

she held. But to be extra cautious, he advised, "Get them out of there anyhow."

Which explains how a 1960 fully restored powder blue Corvette ended up inside of a shipping container coming to Provo.

The bottom line was we would spend $10,000 to answer the charges and play along with the court system until we had exhausted the funds. In that interim, close down anything and everything that GI could attach when - not if - they got a court judgement against me. It was not going to be a very gracious exit from a position of being the founder and backstage leader of an American industry which had, however briefly, flowered from seed to bouquet in a most prolific display.

Shaun Kenny, meanwhile, had been on the air asking for donations to 'fight GI'. Money poured in and this provided a new reason for the GI-leaning printed trade press to attack Boresight. He offered me the same avenue of fund raising and at Skatfeld's advice I graciously declined the offer. And although the suit was a single document, the charges against each of the four were significantly varied. Karen J.P. Howes was named primarily because she appeared week after week in a 'two shot' (she next to Shaun) on the tube. To her credit, while Shaun ranted about the injustice, and continued to offer for sale various Videocipher busting knickknacks, Karen on several occasions (even prior to the suit being filed) disagreed openly with Shaun on the air and urged viewers to not become involved in anything that might be construed as 'busting Videocipher'. Ultimately, that would get her 'off'.

Bepko, meanwhile, was a special case. First of all, he was a NASA computer honcho, and rather than being publicly reprimanded for his part-time activity, by in large NASA closed ranks to support him. I took this as a statement about the 'value' they placed on having his computer skills in their shop. Bepko, to GI's knowledge, was not in the chip business - only the chip education arena. In actual fact, if one had access to long ago lost records at Clare Skatfeld's office, and happened to wander through a file titled 'Rabbit Technology Limited' they might have uncovered a surprise or two. But, alas, GI did not have this knowledge so why were they putting the heat on Dr Bepko?

The answer should be obvious. Bepko had demonstrated over 9 days that he, more than anyone else appearing at the podium, knew and understood the various different approaches to breaching Videocipher. What he knew would, if shared with GI, help them make the next generation system (to be called Videocipher 2+) more hack proof. And in the GI mind set, the best way to gain Dr Bepko's support for this extracurricular activity would be to scare the crap out of him

with a personal lawsuit, and then, quietly, agree to drop the charges or modify the settlement in return for his agreeing to provide them with the knowledge he alone carried in his head. One of the clever Harvard educated guys at GI even wrote a memo suggesting:

"Keep Bepko on the hook right up to and through the trial. His testimony will help us gain convictions against the others. Then, quietly, let him know that whatever damages the court awards us from him specifically can be 'paid off' by his doing work for us in designing the next generation Videocipher."

These guys were all heart.

In less than a month our $10,000 was gone. 'Send more money', came the message from our Miami attorney. "I think I see a defensive position developing." Right on. As Tim Heinrichs would discover in a 1998 suit brought against him by Rupert Murdoch's NDS group, "When they sue you, it opens a big hole in your bank account. Money starts flowing out at an alarming rate and your only focus is on closing that hole."

The final-forever issue for CSD was dated April 25, 1987. It was 16 pages plus cover with four pages of advertising. I explained why this was the last, and ended with a line that would be echoed by Heinrichs more than a decade later.

"You don't have to be wrong, you simply have to be unable to afford a defense, and you are a loser. The other sides gets to call you an outlaw or whatever they wish and you have no choice but to take your lumps. The resources of GI and the US Customs Service are inexhaustible. Mine are exhausted, and so am I."

And a postscript. Eventually, early 1988, GI did get a court date and there held forth in a trial with no defense appearing. The judge ruled Shaun and I were 'guilty' because we were 'no shows' and levied awards of just under $500,000 in favor of GI against each of us. GI subsequently spent a few thousand dollars scratching around searching for some indication that something of mine remained in US jurisdiction and came up empty handed.

And Shaun? Boresight continued but more and more often he missed air dates. Then came word - in the middle of a roaring snowstorm he had climbed onto a customer's slate roof in northern New Jersey to attempt repair on a satellite dish. At barely age 40, he slipped on the ice coated surface, tumbled head over heels and broke his neck when he hit the ground. Dead, but hardly forgotten.

The meek shall rule the earth

Those who see bad guys hiding under every rock immediately postulated that Shaun's death was, 'no accident'. I never saw evidence to substantiate the 'no accident' theory but for Keith Lamonica's satellite radio crew, facts were never an impediment to wild and crazy pronouncements. What followed through 1988-1990 could have been forecast by anyone with a Ouija board and a four leaf clover.

Close to home, 'my Patti' decided that Provo was about to explode and liquidating segments of her personal investment account portfolio began buying up land as if it were some sort of Gold Reserve. I busied myself with the completion of WIV Cable TV and a series of 'Provo Magazine' TV programs using resources spread from the Dominican Republic and Haiti to Provo itself. By early in 1988, we had more than a two dozen 30 minute TV programs 'in the can' and by 1989 that number would double. Copies of the various episodes now sold at a dozen or more Provo locations and it was a tidy money spinner to provide tourists with 'something on video' to take home with them to Toronto or Tallahassee.

Many old favorites continued to drop in, including Doug and Polly Dehnert from Minnesota's United Satellite Systems. Doug had located a pair of 11 meter (36 foot) ex-ABC network satellite dishes for the ridiculously low price of $5,000 each and one of those ended up on Provo. The US networks had decided to encrypt their feeds to stations and we badly needed access to ABC, CBS and NBC (this being before Fox) for the cable system. Dehnert and my local crew spent a very long ten days turning a forty foot container crammed with metal parts (and no instructions) into a working 11 meter satellite dish that did the

seemingly impossible chore of dragging in all of the US network programming through a Canadian satellite. As a bonus we also managed a handful of Canadian channels so as the American sources went away, new replacements came on line. I would forever be grateful to Dehnert for his tireless efforts for which he received not much more than 'room and board' at our Grace Bay home. True friends like Doug were worth far more than money alone.

Patti and I spent weeks in both the Dominican Republic and Haiti shooting video for a pair of 'our next door neighbors' segments on Provo Magazine. One of those trips bares relating because it illustrates how totally mad we all were.

It was a point when ex-Paraclipse head David and girl friend JoAnne Johnson were now living in our 'Annex' and they joined us on an Ed Hegner flight heading for Puerto Plata in the DR. Hegner had changed, matured would be an apt word, not one bit in the near decade I had known him. If he could fly 100 miles to save 5 cents on a gallon of air plane fuel, he would do so.

"We'll stop in Cap Haitien," announced he, ten minutes into the flight.

Now Haiti has been an unsettled piece of ground for as long as it has been a French outpost in the Caribbean. Setting aside my visit with President for Life's Baby Doc, any trip there was an adventure in exploratory tourism. This one would be no different, even if the planned stop was intended to be 15 minutes or less.

There were strange fires burning in the streets of Cap Haitien as we circled and pulled into for a landing. I noted them to David.

"Probably the garbage collection detail is on strike and they are burning their collections street side," was his response. David was not an aficionado of Haitian lifestyles. In fact, as so often happened in Haiti, a minor armed revolution had broken out in Cap Haitien, unreported by the world's new media at our time of departing Provo an hour earlier, and as Hegner set the D-18 tail dragger plane down on the too-short paved runway, we were immediately in the midst of a fire fight with armed troops on one side of the plane and pathetic rebels waving 22 rifles and ancient shotguns on the other side. True to life form, Hegner was running on petrol fumes as his engines sputtered simultaneous to our wheels touching down. Buying aircraft fuel from an airport pump when the entire facility was under siege seemed unlikely. Getting off the ground, without having bullet holes or something worse, was not an option - we were out of gas. So there we sat, gas-less, unable to move the plane (although we had coasted to a stop within

50 feet of the once functional singular pump) under its own power and 'pop-pop-kaboom' noises all around us. I did what any trained journalist would do - quickly unpacked the 3/4" camera and began looking for angles from which to shoot without being shot. Already in my mind, how to get the tape back to NBC News for the nightly news cast.

Hegner had a bigger concern - how to get the hell out of there before we were cut to smithereens by the small arms fire. Being a street-bright fellow with some experience in war zone settings, he reasoned that some of us had to get out of the plane and somehow push it over next to a couple of parked aircraft at the side of the strip.

"One of them is bound to have fuel in the tanks - we need to get close enough to siphon it into our tank - we don't need much - a couple of gallons will reach Puerto Plata."

David popped the one and only (side) door and he and Hegner and I tumbled out onto the ground. The girls elected to stay in the plane laying down in the narrow walkway between the single row seats.

I was torn between running the camera and helping David and pilot Hegner push the aircraft perhaps 200 feet to rest alongside one of the parked aircraft. The combatants were possibly amazed to see us, more amazed at what we were doing, not certain whether we represented government reinforcements or some crazy tourists. For the moment the gunfire subsided and then we saw one side - the rebels - perhaps a dozen men, mostly armed with short-range machetes, running away from the airport back perhaps 300 yards towards Cap Hatien. This was the lull we needed to push the fuel deficit D-18 alongside the pair of parked planes.

"I'm going after them," I shouted, Sony camcorder on my shoulder, ricocheting down a ditch towards town. Years later I realised this had to be the most stupid thing I might have done - right after challenging GI over Videocipher. In the heat of battle, journalists do dumb things like this and that's why so many of them come home to America in body bags. There is something about having a camcorder resting on your shoulder that makes you believe you are invincible, that the combatants will somehow recognise you as a 'neutral' and not select you for target practice. Call it the emotion or energy of the moment.

As it happened, the first plane Hegner and Johnson reached was configured in a way that Ed's 25 foot garden hose siphon simply would not reach their tanks. Moreover, the tank cap was locked - smart them, someone who had stayed over in Haiti previously, no doubt. So as I disappeared further towards town with the 3/4" camcorder running,

they started anew to reach the second parked plane. This time, Hegner had run ahead to verify the gasoline tank cap was not locked (it was not) but he was taking the chance that in fact when the hose went into the tank, there would be fuel on board. Yes, he was 'stealing', or planned to steal, fuel. War is hell.

Several hundred yards down the roadside ditch the 'pop-pop' noise began anew. The government militia, which in Haiti amounted to guys paid $10 a month and fed a meal a day to stay off the streets as thugs, had caught up with the departing rebels. I was on the rebel side of the roadway, and that made me fair game. Several small arms pellets passed near enough for me to register the distinctive 'whizzzz' noise of passing projectiles. I think it was at that point I faintly heard Patti yelling something at me - sounding like, "Bob! Get your ass back here. Now!!!"

I instinctively ducked behind some palm tree trunks barely in time to see a hand thrown grenade explode just far enough away to send shrapnel pounding into the tree that shielded me. It was a wake up call - I was *not* a real NBC newsman, I was *not* being paid for this foray, and seeing my name at the start of the yet to be edited piece on tonight's news was a dumb trade for either serious injury or death. I rolled over into a ditch and laid there wondering if GI had set me up for this entire fiasco. 'First we kill the lawyers' had become, 'First we kill the journalist!'

Back at the airport, Hegner had struck it lucky. Johnson sucked on one end of the hose, Ed said the best prayer he could think of ("God dam it Lord - get us the hell out of here!") and the two girls had tears ruining their mascara. I crawled another ten yards and as I rounded a corner in a culvert ran smack into a rebel holding a 22 rifle which in better days might have been capable of downing a chicken at ten paces. Today it was so rust coated that it took him nearly a minute to even cock it for firing. I got it all on tape and yelled something really stupid at him. Like - "I am with NBC News New York - what is this all about?"

He of course spoke no English (Creole French being the native language in Haiti) and looked at me with total astonishment. What he did recognise was the TV camera and possibly thought his big moment to be on American TV had arrived; 15 seconds of fame. His answer, never properly translated, ran along the lines of "We will die for a free Haiti - long live free Haiti!"

That was what I needed - a sound bite to go with the several minutes of poorly framed, live action video. I waved at him with my thumb up, turned and crawled back through the shelter of the ditch towards the airport runway. Tom Brokaw - you'd better love this 'cause I wasn't

hanging around any longer!

I made it back as Hegner and Johnson were crawling inside the D-18 while I ran across the tarmac, hopping aboard the already blades-spinning twin-engine aircraft, and with the side door still hanging open we taxied to the end of the runway while I manhandled the door closed with Patti's able assistance as our wheels left the runway. Just another brief sojourn into Haiti.

David and JoAnne Johnson. This was the David Johnson who had been the founder of home dish TV's runaway major antenna success story; Paraclipse. The same David Johnson who went with me to Sri Lanka to personally install a 16 foot antenna on the rear deck of Arthur C. Clarke's home, who became the spiritual and appointed leader of SPACE under attorney Brown, and who watched his firm's monthly antenna sales plummet from 35,000 to under 5,000 in the 18 months starting January 1985. JoAnne was not related to him - except by conjugal relations - she had been his personal assistant at Paraclipse until David one day threw in the towel, ran out on his family, and disappeared into the sunrise.

When the last vestiges of the home dish industry splintered and disappeared as dust during 1987, David Johnson had awoken one day in his upper-class Redding, California home with a prophecy. He and assistant JoAnne were going to disappear, simply go away, leaving behind a struggling company largely controlled by his wife's family and a group of local investors.

Johnson was '30-something' at the time, JoAnne several years his junior. David's family life was dominated by his wife's close knit family, and it had been her family's seed money that turned David's original antenna design into the industry's leading best seller. For all of his meteoric success, David was held on a close leash in Redding, wife Laurie doled out an allowance for his non-declared expenditures and when the firm peaked at 35,000 antennas out the door in a single month, SPACE ended up with nearly $100,000 of this because David believed in the ability of Rick Brown to 'keep the industry honest' against the over whelming odds that cable would one day win the battle; as they did.

David was honest and straight shooting to a fault, but he was also carrying a personal burden which almost nobody recognised until after the bubble had burst. The burden? He was a proud, tenacious man who in the privacy of his own home, surrounded by his wife's family and their close friend investors, was constantly reminded that, "without us, you are a nothing - an ex-fire fighter who struck it lucky."

In effect, David was a 'figurehead' at home if a dynamo and industry leader outside the home. When the industry collapsed, his home life became unbearable and he decided to 'sneak out of town' without telling anyone he was through.

These were perilous times in 1987, and many of the industry's sudden-wealth, instant-poverty leaders had been knocked back to pre-TVRO-lifestyles. For his honesty, David would pay a huge price. Example.

Although he may have considered the option of 'disappearing' for a week to ten days prior to it happening, there were no escape plans. Not one. Taking his company owned car, he left home with the usual routine and drove directly to JoAnne's apartment.

"Pack one bag - we are leaving." She had no advance warning, no clue this was on his mind. Moreover, while they may have been 'friendly' beyond a point of fidelity on one or two previous occasions, there had been no discussion or pretext that anything more permanent might ever result. But, as David's PA (and one who daily saw her position declining in a straight line curve that ran parallel to declining sales), she had privately begun discreet inquiries about work further afield - say, San Francisco. She was primed to 'disappear' even if this had not reached a conscious level in her mind.

The total lack of a plan would dog them for several weeks. David's access to 'loose cash' was almost non-existent, it being under the lock and key of his wife's family. What he intended to do was totally disappear from the face of the earth, long enough to leave the United States before the gendarmes from his wife's family ran him down. That was going to be difficult.

They needed cash money as credit cards left a trail. One of the very few tangible items in his own name was a 1930s 'Tiger Moth' aircraft, resurrected lovingly piece by piece over five years of spare time, 'get away from the family', hobby time. A close friend in the ancient aircraft field coveted the plane.

"It is 9AM. Go to your bank and get as much cash as you can at 10 and I will sign the plane over to you." That done, they had $32,000 in spendable greenbacks. Now, across the airport where he parked the company owned car, they bought a pair of tickets which he knew would be traced to Reno. They were on their way.

It would require nearly two weeks to reach Miami, driving a 1955 era PG&E (Pacific Gas & Electric) 'lineman's truck'. In Nevada, they found a vehicle which seemed like an absurd choice - barely capable of leaving the lot where found, painted hideous mixtures of orange,

pink and blue - it stood out like a bandaged, sore thumb on a Backgammon player. It would eventually end up parked 3,000 miles away in my driveway, on Provo.

In the far recesses of David's mind, he envisioned his mechanical skills (which were considerable) would allow him to open a business on Provo bringing mechanical repairs (welding, steel fabrication) to the customer's doorstep. The truck, outfitted between Reno and Miami with bargain basement yard sale located heavy duty tools and equipment, would be a base to operate from.

His family missed him at dinner, pondered why he had never reported to the office that day, and eventually located his abandoned company car at the Redding airport. From there to Reno was a matter of an hour or so in checking flight schedules and ticketing. But in Reno the trail grew cold. However, that JoAnne Johnson had also not reported to work, and her apartment was locked and apparently abandoned, provided a significant clue, especially after a co-worker of JoAnne admitted she had been a confidant to one or two 'conjugal' meetings with David.

JoAnne was a sensuous woman posing as a bespectacled easily-forgotten office worker. Her hair in a bun, her clothing 'politically correct' for her position as David's PA, she had never struck me as a woman with deep emotions. Hidden, well hidden behind her typically loose fitting beige blouses, was a 44 inch bust line that she took great pains to disguise. A 576 kb image of her standing on the beach in front of our Provo home, now on my PC screen, would stop virtually any male animal on the planet in a frozen stare. In the photo, she was essentially naked in a beach location where virtually everyone was naked - thank you Club Med. In any crowd, without clothing, she would stand (or stick) out.

She and David would arrive with no forewarning on a PanAm flight - their 1955 PG&E 'repair truck' following on a weekly barge shipment. With CSD closed, and me out of the daily briefing for what remained of the industry, I would not be aware of 'David's disappearance' from Paraclipse until industry scuttlebutt preceded them by two days before they appeared on Provo.

"Where are you?" I asked of the familiar voice on the telephone. "They say you are missing!"

"Can you come down and pick me and a friend up - we are here!"

And so began a seven month occupation of our Grace Bay Annex building apartment, the most lengthy since Tom Humphries left M-A Com as its director of home dish systems and appeared with similar

non-warning. For the first two months or so, we seldom saw them for more than a few moments at a time - but JoAnne's unmistakable screams and David's loud shouts of exhilaration would punctuate the air of the compound several times each day. In a single sentence, JoAnne was becoming quite proficient tossing David several feet into the air and David was learning how to land without incurring new bruises. In 60 days or so, he had lost twenty pounds and she slowly developed into a muscle bound exercise freak with breasts that belied her otherwise trim and thin body. Topless, nobody would ever mistake JoAnne for a middle level personal assistant in the world of commerce again.

In fact, setting aside their personal satisfaction several times each day, nothing about David and JoAnne's half-year-plus in my Annex facility worked to their benefit. David found hourly sex far more rewarding than working, and after his grub stake of cash was gone, he used my name to talk the local Barclays bank into advancing him an additional $20,000. When that ran out, as it was bound to do, he and JoAnne would part ways with both returning to the states; she to a nondescript position in the San Francisco area, he to face his deserted family and creditors in Redding. I inherited the 1955 PG&E truck, and tools, which eventually proved useful in our WIV-Cable TV construction work.

By early 1988, most of the trade press remaining in business had run out of ways to tell and retell my abdication of a power brokering position and we slid off the front and the rear pages of print. It was here that James Long elected to take a second bite at collecting money for what he was now describing as a 'personal attack on myself'. The second case was filed because a Birmingham lawyer found a procedural error in the handling of the first suit which left the court no choice but to reopen the matter. And whereas the first case had largely been handled by the attorneys appointed by my liability insurance company on their own, this one would see Patti and I spending as much as ten days at a time in Alabama's center of commerce.

Long was, he believed, better prepared, with witnesses who like he, I and virtually everyone else in the industry five years prior, had now gone on to more mundane activities. Prominent in his witnesses was Bob Dushane who's firm, Janeil, had manufactured a low grade of home dish antennas as well as super-cheap receivers. The Dushanes (two brothers) had a Mad-Man Muntz mentality - 'thin' the product until it no longer works, put back the last part removed before it quit and then send it into manufacture. Unlike Earl Muntz, the Dushanes had it backwards - when it quit working properly, they took out *another*

part or two and then buttoned up the design! Dushane's antennas were uniquely manufactured with a grade or steel which guaranteed they would begin rusting often before the concrete holding their support pole had dried in the ground. Our April 1983 front cover had featured one of these antennas badly deteriorated with rust and for better or worse from that issue forward Dushane had found himself disadvantaged in the antenna sales arena. He obviously looked forward to the opportunity to 'get even with Coop' by testifying on Long's behalf.

I thought Long's choice of Dushane a strange one - here he would be placing a prime example of inferior, shoddy products - which Long of course sold in great quantity even after my 'rusting cover', on the stand to testify that Long had been personally damaged by my editorial comment. A bit like President Clinton asking Monica for a character reference.

Over the course of the trial, I had my first ever conversations with Jimmy Long. It turned out he had been to the Turks & Caicos Islands in the mid 70s, South Caicos to be exact, during the period when the airport there was one of the major drug plane refuelling stops. I naturally asked him why he might have visited there and his answer gave me no comfort that I was ever likely to get any reasonable explanation from him. I highlighted his lack of a response in my notebook of the day and intended to look for someone in the islands who might recall his visits when I returned home. Alas, it was never pursued.

My attorneys were pressuring me to take the stand, which of course would allow cross-examination by Long's high powered southern lawyers. I was reluctant to do so, not because I had anything to hide (or so I thought) but simply because it all made me very nervous - to even be there.

But I did and in what seemed at the time like an innocent background establishing series of questions I carelessly slid over my University of California and San Jose State days and in doing so gave Long's folks the opening they had prayed for.

What I said, incorrectly, was that I had 'graduated from San Jose State' after switching from electrical engineering to journalism. In fact, 'graduating' is an act that includes standing in a line, receiving a certificate for completion, and being listed on some sort of permanent record as having completed the course of study. In doing prep work, Long's attorneys had run down my first wife Carole who had more correctly advised them that prior to the actual graduation ceremony, I had left school to go from part-time at radio station KFIV and ABC News to full-time. It may have been a few weeks discrepancy but when I slurred my

original response they pounced on it with feet, arms and mouth flailing.

"If Mr Cooper cannot even accurately recall his graduation exercise, how can we expect him to recall with accuracy his state of mind when he wrote the story about Mr Long?"

In the interim years, San Jose 'State' had become San Jose 'University', as we found out at the end of the day while attempting to get through first to the registrar's office, then to the records department. My attorneys (and I) were seeking 28 year old records from a school that preceded the present one, and fax verification of my attendance there, overnight. It was not going to happen.

This was a jury trial, and that of course concerned me. A 'southern court', southern icon James Long, a southern jury. I was none of the above and my attorneys were from 'out of town' as well. Wonder of wonders, the jury found for me and against Jimmy Long - and once again he would be obliged to pay court costs, my attorney costs, and even the expenses incurred by Patti and I in attending the trial. Expecting final vindication, Long had tipped off the one remaining satellite industry weekly trade paper to the trial, and they hired a local photographer to catch Patti and I and our attorneys leaving the Birmingham Federal Court building for what had been planned as a 'Gotcha Coop!' story on page 1 of the next edition, heralding Long's 'victory' over the evil former 'father of an industry'.

Darn and double drat. That silly southern jury ruined their plan.

Winding down on Provo

If Club Med's arrival had been a major event in my first half decade of living on Provo's Grace Bay Beach, the second half of the same decade would be a series of ups and downs eventually leading to my decision, not unlike David Johnson's, to pack a bag and disappear into the sunset.

The decision to give up CSD and retire to a full-time island life in April 1987 was the only viable option we had at that time. If the magazine had been generating revenue that contributed to our lifestyle, the decision might have been more painful. But in fact the opposite was true - out of a rapidly dwindling reserve, CSD's printing and mailing costs, and the extra-expense of our Fort Lauderdale office plus Carol Graba, flowed. After spending more than $50,000 to keep it going from August 1986 to April 1987, it was painfully evident that once-co-publisher Doug Brown could now break out his, 'I got rid of Coop', button for future trade shows. If in fact there would be future trade shows.

Staying at home for months on end was a new experience. Having the phone not ring for hours on end was equally new. And not maintaining a large write-on calendar in the pantry listing who was 'coming down', and which bedroom they would be assigned, a change in lifestyle.

Patti was developing into significant local expert on real estate, a subject which amused me but did not attract my serious attention. She, on her own, had developed a bond with several local real estate veterans including an elderly chap named Russ deCoudres and together they could recite the history of virtually any section of Provo's land

tenancy inclusive of when it had sold, to whom and for what amount of money. Hardly a month passed when she (and I - because what she was doing, she kept telling me, "was for our retirement") did not trade, buy, sell, or mortgage some piece of land someplace on the island. 'Buying' was often on terms, she having worked out that if 'we' had a year or two or even three to complete paying for a particular piece, in the interim the value would (should!) increase enough that long before we had to pay for it, the property would be 'turned' for a profit. Slowly, through 1988 and into 1989 more and more of her waking time was spent refining her knowledge and skills in this largely speculative area of commerce and Russ deCoudres was both her guide and mentor through it all, possessing in his head more knowledge about Provo's land values and land appreciation trends than anyone else there.

April 10, 1988. My 50th birthday. A normal kind of weekend day, up to my neck in cable TV challenges and immensely enjoying every moment of it. Patti to me:

"Cal Piper has a TV problem at the IP - could you stop down there around 4 this afternoon to see what can be done?"

Not just another service call. First, the parking lot was filled - no place to park my truck. So too the road leading into the IP. Somebody was obviously holding some sort of shindig and being a person who had tired of big crowds, and knowing the IP passion for holding drunken orgies, it was with some trepidation that I walked the several hundred yards into the facility carrying my trusty cable TV meter and tool box.

"Surprise!!! Happy Birthday Coop!!!"

Four hundred, 500 people - all locals. It would be remembered as the largest gathering of people at a non-public event in the young history of the island to that point. I recall quite vividly being livid for around 15 minutes, unable to speak to Patti in a civil tongue. Honored that so many turned out, of course. Overwhelmed at the support, certainly. Angry that it had been dumped on me with so much fanfare and so little opportunity for me to prepare myself - right on. It was a good excuse for a party and true to her accountancy mind, Patti had worked out a 'trade' with the IP's Cal Piper - the hotel would not be paying a cable TV bill for many months in exchange for hosting my 50th birthday party.

Increasingly, Patti's life and my life were growing apart. I was becoming an isolationist less and less interested in either social activities and as her property trading became more complex, increasingly unable to even picture the property 'we owned' when in her monthly

review of accounts a piece of paper would be thrust under my nose for approval and counter signing. Her skills in this property arena were attracting some land shark characters, individuals who while socially pleasant should be avoided as business partners. My instincts told me this when she dragged me out to eat with people who eyed my wife with lust and then arranged with her for trips to back sections of Provo to 'look at land'.

By late 1988, I knew that something had to be done about my deteriorating relationship with Patti. She was so possessed with money and building an empire on Provo that life with her was a constant stream of quizzes about, "why did you spend this - on that?" and I usually failed the quiz. Preoccupation with money was an obsession which permeated everything about our relationship. But I allowed it to simmer on the back burner until fate stepped in.

"Bob, this is Ariel." A local attorney, embroiled in politics, whom I used on occasion because he was, if nothing else, amusing to be around. It was a Sunday afternoon in January (1989).

"Dick Clark is one of my clients, as you know." I did. Dick Clark, the infamous American Bandstand from Philadelphia rock and rock TV show 'star', had recently purchased a sizeable tract of land on Provo's western shore and the mansion now under construction would be one of the largest and most sumptuous in the country. "Can you pop down to my office - right now? Dick and I would like to talk with you."

Why not? It would be a opportunity to get out of the Grace Bay home and leave Patti alone with her accounting sheets and faster than the speed of light long fingers pounding on a desk calculator.

Dick Clark was looking for an investment on Provo. And he had zeroed in on WIV Cable TV. It was a natural, thought I; and in 30 minutes time we had, subject to approval of WIV's now sizeable Board of Directors, agreed on a price and terms. We shook hands and I returned to Grace Bay - not saying anything to Patti initially about where I went or what transpired. On Monday I made a trip to see our personal attorney, Clare Skatfeld, and explained the offer to him. He was a close personal friend of both Patti and I, and in fact would find Patti alluring in the future. But today it was all business.

"What does Patti think?" he asked. I admitted that she did not 'think' because she did not know.

"Might I ask why?" he quizzed me.

The measure of our friendship followed. I poured out to Clare my circumstances with Patti and the longer I talked the wider his smile.

"I have seen this coming," he finally interjected. "If you continue

to live with her, she will be a quite wealthy widow - soon." No, that is not what he meant. He continued:

"Her appetite is - well, insatiable, for some physical activities. For one night, a man our age can probably survive. Day in and day out - well, you have my envy and condolences!"

I smiled widely and said nothing to deny or affirm his supposition. It was apparent, however, that Patti's mannerisms had caught the attention of at least Clare and probably many others on our island.

"I'll sound out the board members but as Patti is on the board I suggest you find the best time to break this to her. She will, I forecast, want double the price on the table!"

Patti, her body on the table at a board meeting, flashed through my mind. As did a queue of board members waiting 'their turn'.

Well, Dick Clark's New York lawyers came unglued when he reported his island offer.

"First of all, WIV Cable steals TV signals from the US networks and pay channels - they are not authorized to be carrying those channels and Cooper is on their hit list if they can work out how to get at his assets."

Clark himself called me to report the bad news - his lawyers said no. Strangely, when we met in the Provo attorney's office I had mentioned this possibility to Dick and he shrugged it off with a, "I am Dick Clark - I can do what I want to do down here," attitude. Maybe yes, but not if his New York attorneys said no.

Unfortunately by the time he got back to me, Clare Skatfeld had all of the board members salivating with the prospect that their original investments in the region of $50,000 would now turn over by four to five times. Equally unfortunately, as predicted, Patti's response was 'double the price!' followed by a day long lecture delivered to me about even 'thinking about doing this' without consulting her. My only excuse - and it was a lame one in Patti's eyes - for not telling her before I went to meet Clark was that when called, there was not even a hint about what the discussion would cover. I had no excuse - even an unreasonable one - for why I had not told her about it when I returned or why I went to see Clare Skatfeld without taking her with me.

All of which reinforced my subliminal mind set that living with a possessed female version of Scrooge was heading for a showdown.

So when the same attorney called me a second time less than a month thereafter with another message, I dutifully passed it on to Madame Cooper in some haste.

"Ariel just called. He has a client who wants to purchase the property here on Grace Bay."

In fact while selling the home was not uppermost in my mind, the timing was spot on. But some background is in order.

Patti's assets (what she was worth on paper) exceeded a million dollars. That did not include the cash we had dug out of her heating vents back in Virginia, her South African gold coins, and other spendables that probably totalled half-again of the paper value her Richmond accounting firm prepared for her each year. My own assets, when we were married in 1986, were close to but (she would gloat) slightly less than hers. On paper, we were both worth a million dollars. Her assets attracted regular dividend checks being wisely and frugally placed in the hands of a major accounting firm. My just sat there with uncertain redeemable value day to day.

Prior to marriage we had signed an agreement - one of those prenuptial documents intended to keep the respective assets beyond reach in the event the marriage does not work out. No, the agreement was not my idea. But of course all such agreements have a deceptive fault - what is acquired after the marriage vows become new community property - both own it. And from Patti's formal entry as Mrs Robert Britt Cooper, Jr until our ultimate break-up, we (that is she and I) had gone on a buying spree on Provo. Between 1986, when we were married, and 1989, Provo went through a period of economic downturn. The original land developers - the Dickie duPont gang from Delaware and Alabama - got into their own divorce situations, business downturns in the states, and generally bad investment advice. Patti could have straightened them out but they never asked her.

In this period land on Provo suddenly became ridiculously inexpensive - downright cheap in fact. So every few months with some major cash payment looming at the land development company, they quietly circulated amongst the Provo ex-pats a new set of land offers. They were called 'Seven Day Sales' which meant you had not over seven days to respond to the offering list. Patti looked forward to the issue of a new list with wild enthusiasm, certain in her mind that a one acre lot anyplace on Provo for as little as $5,000 was a superb investment. Even those offered for $25,000 were, she believed, "sure to triple in price soon."

So there we were biting our fingernails, creating special limited value friendships with the folks who made up the list hoping to get a preview peek at the lists before they were circulated, and she keeping a hundred thou or so liquid in the local Barclays bank because one of

the 'Seven Day Sale' rules was 'cash with offer'.

By 1989, Patti and I had accumulated more than 50 Provo acres, mostly residential in character with the odd commercial lot thrown in. Moreover, during the course of a few years we discovered we owned enough adjoining blocks of residential land to create a subdivision of our own. Which of course would require roads, sidewalks, power and the usual developer costs. It was Patti's 'subdivision master plan' that covered our seats-16 dining room table when Ariel Misick called for the second time.

"Ariel," said I, "we have no immediate plans to sell the house and property."

"Hear me out," he began. "The offer is from the Sheikh of Qatar and it involves all cash, in your hands as fast as we can close the deal - not later than Friday."

Five days. Humm.

"And the amount?" asked I.

"He's offering a cool million dollars."

My response as that I would discuss it with Patti and call him back.

"Right back - he's sitting here in my office and wants to go to dinner."

Message? Don't keep the Sheikh waiting.

Patti. "Not enough." No discussion. Simply, "not enough."

Now it happened that in our agreement not to share assets, the house on Grace Bay was on my side. Not hers. So setting aside my 'love and consideration' for her views, the decision was mine alone. I thought better than pointing that out. She continued her instructions:

"Give me a new price - and think about what we do when we have to move, maybe by Friday!"

"Go for 1.5 million and demand that we have at least a month to get out of here."

Back to Ariel. I repeated Patti's responses. And Ariel repeated them to the Sheikh, who as it would turn out was more interested in his next meal than quibbling over a piece of land. Ariel would later graphically describe the scene in his office to me.

"The Sheikh raised his right hand and clenched his fist. He said, 'tell Mr Cooper $1.25 million, and he can live there until January 1 next year' and with that he rose from his chair, gathered up the flowing robes in which he was wrapped and motioned for his inner circle entourage also in my office to leave for dinner."

We took the deal. Patti already had the money spent - in her mind. My money, remember.

"Now we can go ahead with the subdivision," she began. "I calculate it will take around $400,000 to develop the 15 acres but once done, and with the market price of property rising as it will shortly, we should clear a million dollars on this in a year or two."

"We?" Patti and my money from the sale of the Grace Bay homestead. Actually, it was not all 'my money' at all. When Susan and I had divorced, thereby allowing me to marry Patti, I had quite happily agreed that if the house sold, that 50% of the net proceeds would go to Susan and the kids - Tasha and Kevin. So divide by two for a start, extract some previously agreed to overhead fees and well - I had around $550,000 in cash in the bank the following Friday. And so did Susan, much to her delight and total shock. Susan would invest her share into her new husband's Oakdale, California pharmacy leaving me to work out how to keep Patti from spending my portion.

Retrospectively, one had to hold a certain reserved admiration for the way that the 'Super Rich' conduct their lives. The Sheikh had one of those 'Why not me???' problems. Every week of every year, he had US$15,000,000 to invest. Surplus from the flow of oil in/out/through his Gulf of Persia fiefdom. He had a team of very well paid globe trotting investment advisors who's task it was to locate places to properly invest this 'cash flow' each week. No, going into the local Bentley distributorship and buying a fleet of $200,000 cars was not how he used these funds.

One of his investments had been a minor league Paris based water company, in the early 80s. When the Club Med folks decided they would develop property on Provo down the beach from my home, the Sheikh's water company ended up with the contract to create a desalinisation plant for the 200,000 gallons of fresh water they would initially require daily. This introduced one of the Sheikh's advisors to Provo and his reports back to the sands of Qatar were apparently glowing.

The Sheikh in 1989 owned a 727 which had been stripped of all normal fixtures and rebuilt with lounges, hot spas, elegant meal preparation/eating/sleeping quarters. When the Sheikh and his entourage (typically 50+ hangers on) wanted to pop off for a vacation or tour, into the 727 they piled. It's arrival on Provo became so frequent that even locally it was a non-event. "Oh yeah - what's his name with all of those funny dressed women is back - again."

So on that fateful Sunday the Sheikh had engaged Provo's largest motorized tour boat and loading a few dozen compatriots on board they had zipped around Grace Bay and inspected Club Med from the water side. In that trip, they passed by my Grace Bay home. Ariel Misick,

the Sheikh's attorney on Provo, was being treated to an afternoon with 'his lordship' and was on board.

The Sheikh to Ariel as they passed my home.

"Who owns that?" Ariel told him my name.

"He's the TV guy - yes?" Ariel said yes.

"When we return to dock, call him on the phone and tell him I wish to purchase his property."

End of discussion. Just like that. And so the man in flowing robes turned his attention to issuing instructions for the dinner meal.

With the $1,250,000 in cash came one of the Sheikh's investment advisors, to my home. Stacking up the bills on the dining room table resulted in Patti having to change her undies (which apparently also created some havoc at Barclays bank both leaving, and then going back in boxes from my house); we signed some papers and shook hands.

I liked the advisor - he had been interrupted in Argentina where the Sheikh had him purchasing a 6,000 acre cattle ranch. "There's still good money in prime Argentine beef," he explained to me. "Tomorrow I will be in Florida closing on a condo complex." Patti was experiencing trouble with her bladder. First there was this huge stack of American bills covering the dining room table. Next there was this handsome Greek guy casually spending five million dollars here and ten million there. She later told me with uncontrolled emotion, "He was yummy!" Chewing on things was one of her favorite pastimes.

Into the future. We were granted until January 1990 to vacate the property - although remodelling crews for The Sheikh arrived two months prior. First order, air conditioning from stem to stern. Second order, turn the annex into sleeping quarters for up to 40 folks at a time - the entourage, you know. Third and perhaps most important, our 'open style' dining was cut into pieces - no kitchen or serving help should ever be allowed to visually see any member of The Sheikh's dining table entourage from outside the room. And on it went - as heavy as our electrical lines were, they could not handle the air conditioning so new 3-phase power was plowed in. The local contractor confided, '$250,000 for the modifications'. Getting me (not us) out of a ten year domicile was a major exercise. First of all, the WIV TV studios had begun here and while our operations changed from over-the-air to cable, we still maintained a three channel transmission service for outer islands. All of this flowed through and originated at 'The Annex'. And while some of the satellite dishes, post Hurricane Kate, had been moved to our Tower Plaza facility, in fact before we could move, over half of the cable system had to be 'turned around' - what

used to flow from east to west now needed to flow from west to east. So there were months of reconfiguring involved - not your average 'house vacate move'.

Compound that with a ten year collection of CSD materials, two full shops, all of the items Susan, Kevin and Tasha left behind for 'safe keeping' and a pair of radio stations all in The Annex and I was faced with a very lengthy, technically challenging series of individual steps that would not be resolved overnight. And this was before we tackled the house where Patti had moved her Richmond home to Provo, marrying her house full of furniture to that which Susan and I had there as a launching point. Moving was going to be a long, drawn out exercise; thousands of hours of sheer drudgery compounded by an equal number of special steps to move cable, TV broadcasting, and radio operations from Grace Bay to Tower Plaza without interrupting service for more than a few hours at a time.

Me to Patti: "I cannot do this alone. I need help." Separating, cataloguing near ten years of aggressive collecting, deciding what would be stored in rental containers, what would go with us to a house we had not yet located, would be a multiple-month effort: A (tiny) fraction of this could be moved to Tower Plaza's 'spare room' but most of what was in over 8,000 square feet of Annex plus home space would have to be carefully sifted for keep, and, discard. Provo's largest-ever 'Yard Sale' was looming on the horizon.

Patti to me: "Go find some help."

She was much too busy becoming the real estate queen to help, a statement I would chew upon and over time allow to intercede in our relationship. I began looking for someone to take on the moving responsibility, with me as a helper, since running the cable system, radio and TV stations, and grinding out more and more Provo Magazine video programs already had me well occupied.

One evening each week, I was holding 'ham radio classes' in the Tower Plaza facility, convinced that when (not if) the next hurricane struck the islands, the country needed to have an emergency corp of trained two-way radio operators available. Hurricane Kate had highlighted that the local Cable & Wireless telephone service not only had no internal backup but their passion for economy and profits had stripped their technical crews down to a bare minimum of people. It took them months to repair hurricane damage and get telephone service restored and for that period of time my own personal ham radio station had become a backbone of emergency communications. But with only a half dozen or so licensed hams on Provo, and none

in North or Middle Caicos, the country was vulnerable to the next storm.

The government had entrusted me to create an amateur radio licensing system, leaving it to my discretion to work out a testing regimen and even handing over the authority to grant licenses. I took this very seriously, having been a licensed ham in America from age 15 or so, and my 'ham radio classes' were part of this effort. Using WIV television and radio to publicise the classes, which ran ten consecutive weeks for several hours each week, I and a handful of existing licensees taught Morse Code and the technology of radio, including generous sessions using a complete ham station I had already moved to The Plaza. The first ten week session had filled up with 25 people attending, and by March a new group of 20 was starting.

In that group was a younger couple from America, Brian and Gay. Their background was appropriate - she owned a sailboat large enough for the two of them to live on, he was a very handy guy who could take a hank of wire and some spent chewing gum and turn it into a useful appliance. They already held American ham licenses - as most 'yachties' do for their own at-sea communications and safety - and as he had taken a position at a start-up 'boatyard' on Provo's eastern end, it looked as if they might be around for awhile.

Brian to me at the close of the first session they attended:

"Do you know Gay has a degree from the University of California in communications?"

I did not, of course.

In fact, Gay had spent several years owning and operating a court-reporter, witness-on-videotape business in New Orleans before abandoning the United States with Brian for a life on board a 12 meter sailboat.

"She could probably help out with your television production." How little I knew, at the time. Gay's 5'10" height put her a head taller than most women I knew, and she was physically fit. Taking his advice, I asked if she would be interested in helping out - not quite sure how she might do that, but conscious that there was 28 hours of work to be done every day for the next 9 months in preparation for our vacating the Grace Bay homestead. Over the sequence of women in my life and the occasional marriage, only wife number one (Carol with an "e") had not fallen into the ham or amateur radio trap. Susan had taken classes in Oklahoma with a neighbor lady so we could talk on the radio when (as was often the case) I was travelling hither and yon. Patti had been coerced into her own 'ticket' by first-husband Andrew

who, like me, credited ham radio for his own lifetime in electronics.

But in truth, neither Susan nor Patti really cared about why electronic things worked - only that they did when the button was pushed. Gay instantly proved to be different.

"I've separated the camcorder batteries into piles - those on the end can be tossed, no longer hold a charge. Charger number three has bent contact pins, somebody got careless inserting and removing batteries. I found some tools on the bench and have reworked the contacts so it works properly again. Oh yes - WIV FM number two is deviating too wide - can we reset the audio processor?"

And that was in the first hour of the first day. While Brian toiled to rebuild people's boat diesel engines at the ship yard, Gay and I tackled 'the move' with her quickly in charge. An example. For everything we would tear down at Grace Bay, a replacement had to be in place and functional at Tower Plaza, or someplace else, before the 'off switch' could be thrown. At the end of the first week, she brought me a total step by step time outline of the sequence for the nine months remaining before 'get-out-of-here day'. I felt obliged to share it with Patti who, until this point, had barely met or talked with Gay.

"How much is she going to cost us?" was the predictable reaction to the carefully constructed outline. In truth, Gay had never asked what she would be paid and my own mind had not come to that crossroads. Taking a deep breath, I made up a number on the spot.

"$1,000 a month."

"Offer her less."

"No, I don't think so. It is me she is helping, so I get to set the pay scale."

"There are lots of natives looking for work - I think you could get somebody to carry boxes and move things around for no more than $100 a week."

At this point I began to explain her technical skills, that she was a 'rare find' because she could (and would) take over some of the cable and radio station duties.

"So let cable and radio pay her the difference - we pay her $100 a week to move boxes, let cable TV pay her $100 a week and radio pay her $50 a week if you think she's so valuable." The first $100 came out of our personal pocket of course which Patti was, true to form, trying to minimise. This would be but the first of many disagreements we would have about Gay's presence.

As Gay and I began dismantling nearly ten years of collected objects, a pile was growing on the TV studio floor which Gay designated 'two-

way radios'. In the back of my mind rested a local problem - two in fact, which begged a solution. Neither the local police department nor the local emergency medical center had any way to contact their personnel when out of the office. This was of course prior to cell phone service and locals, for as long as I lived on Provo, had been using $150 Uniden and other Japanese 'marine VHF radios' as a giant all-island 'party line'. If you needed to reach someone, you turned your radio to channel 16 and called out their name. As virtually everyone on the island had one of more of these radios, it was a very efficient system. But it was 'public' and if you are the police department, sending sensitive communications through a 'everyone is listening' public system was a hazard.

Between 1980 and 1986, so much equipment had flowed from Miami and Fort Lauderdale to WIV that as Gay and I took The Annex apart one room and storage cabinet at a time, we uncovered hundreds of pieces of equipment I had totally forgotten even existed. Within 30 days of sifting the two-way radio pile had grown to the point where a very obvious answer to both the police and doctor's communication needs was staring us in the face. It would turn out to be the type of project which Gay enjoyed most.

Me and Gay to the police captain in charge: "We want to donate, installed for you to use, a complete two-way radio system. There will be a base station here (indicating their front desk), a backup unit in your office, and then as many as ten of your personnel will have one of these (holding up a small handheld two-way radio). And, at a high point on the island, we will install a 'repeater station' so that no matter where you are on Provo, perhaps even out to North Caicos, one of these (hand helds) can communicate directly back here to your office. Or, to any other handheld anyplace on Provo. Here's the best part - it will be totally private to the police although by pushing a button on the radio, the user can change to the VHF radio channel 16 and talk to other people as well."

We repeated the same presentation to Dr Bonnie Ericcson at the Provo Health Medical Center. In our floor pile, we had 90% of what would be required and for an additional $4,000 or so, I would fill-in the missing parts. Neither, of course, said no to our offer - the only question was, "When? How soon!"

It happened that a ten foot by ten foot 'square' of land on the top of Provo's tallest hill had been retained by government, ostensibly as a 'survey marker', so that from virtually any spot on the island there was visual 'line of sight' to the hilltop. The square could just as easily also house a short radio tower laced with the antennas required to

make the repeater systems function while metal or fiberglass pickup truck 'tool boxes' anchored into a concrete pad at the base of the tower would protect the repeater stations. For electricity, some solar panels and a generous helping of large marine heavy duty batteries. Going directly to the sitting Governor, I filed a formal request to allow us to use the tiny square of government land - permission quickly granted.

Alas, the mechanics of creating two complete (which grew into four) repeater stations on a tiny plot of land were not so simply settled. We began the project in earnest in mid-1989 and it would be March 1990 before everyone was operating properly. Part of the problem delaying implementation was the close proximity of so much equipment. When the doctor's system transmitted, the police system 'muted' because of the closeness of the equipment. And vice versa. The ultimate solution was to split the equipment between the hilltop site and Tower Plaza where a 150 foot tower stuck up even higher above sea level than the hilltop. By leaving the receivers for the repeaters on the hilltop and moving the transmitters to Tower Plaza, the several mile distance between the two solved the problem. But that meant the reception at 'the hill' had to then be linked by radio back to Tower Plaza to plug back into the transmitters located there. The $4,000 I thought we might spend on top of the pile of two-way radios isolated in The Annex quickly doubled and it became impossible to hide the additional expenditures from Patti.

Under the 'what you have is yours, what I have is mine' dictum we both agreed to before marriage, I found an escape clause. Right next to the substantial pile of two-way radios isolated by Gay's dismantling of 'The Annex' was an equally over sized stack of 'ham radios'. We broke that down into 'useful' and 'not useful' and I loaded the latter into boxes for a Hegner flight to Fort Lauderdale. There I coerced a local supply house into doing a gigantic swap - I handed them all of the 'not useful' (but often pristine) ham radio gear and they in turn supplied me with the missing pieces for our repeater systems.

Inevitably we would come to the end of The Annex and turn our attentions to the house. One of the annex shops had been turned into a temporary storage depot and into it went dozens of TV sets, VCRs, marine band radios, unwanted furniture, household appliances that had made The Annex a comfortable place to live and hundreds - no, thousands of tools and gadgets. And for the first time, Patti was showing a modicum of interest.

"A yard sale?" she pondered. Provo routinely had yard sales - white folks who had moved to the island found winter coats and ski boots

occupying space in their homes were electing to rid themselves of the trappings of a prior lifestyle. But nobody had ever dumped even a fraction of what we already had stockpiled into a yard sale previously.

Yard sales of course generate cash money. Patti liked cash money; a lot. So she began her own list of items brought from Richmond that could be added to the growing inventory. Logically, she could price her stuff, I would price mine. Somehow we'd try to keep the receipts separate.

"I've decided to get rid of some shoes" she told me one day, leading to a huge pile in our bedroom which had been dragged out of a walk-in closet. These were the famous (or infamous) 'F-me shoes' which first-husband Andy had insisted she purchase for his entertainment. She had them pre counted and small price stickers affixed; 232 pair of shoes, all black patent leather, almost all identical in style - straight out of 'Saturday Night Fever'. She also selected this time to discard various pieces of furniture which, because of the humid, salt-laden air environment, were already beginning to look dowdy. Some styles of furniture should never leave the innocence of Virginia, of course, as also true of cotton planters from South Carolina in the 1860s.

When the much promoted Saturday morning arrived, I opened the front gates to Grace Bay at 8AM as promised and more than 400 people poured through in what I would later call, 'a stampede'. A very sketchy list of things to be sold had appeared on one of our cable channels, and many of the buyers had spotted what they specifically wanted in advance. Those who simply wandered in hoping for time to browse before making selections were quickly disappointed as the savvy folks raced from the front gate directly at items they were intending to purchase. In five minutes, perhaps less, all of the bargains were gone and Patti, Gay, two helpers and I had US currency stuffed into every pocket and cranny on our bodies.

The shoes. All 232 pair. They had ended up stacked on a table and although Patti had placed tags on each pair, all size 10 I might note, someone else had placed a separate sign on the table proper. It was a nice table, carved legs and suitable for seating 8 at a formal dinner, and the price tag on it was $200. In the melee that consumed the first few moments, an employee of cable TV, Valentine Pratt, had spotted the table and grabbing the sign brought it to a helper with two $100 bills. Valentine thought he was buying 232 pairs of women's shoes for $200. The helper didn't know the difference and by the time the crush had dissipated Val and 232 pairs of shows were out the gate and gone.

Some hours later Patti noticed the shoes were missing and began

a search for the money. Originally, the shoes had been purchased by a frugal Patti in the region of $50 a pair; some had been $100 or more. She had spent hours of her 'valuable time' (a phrase I was hearing more and more often) pricing each pair with individual tags - a total of more than $5,000. When we finally sorted out that the lot had gone for $200, every word she had ever heard from Andy, or in a triple-X rated movie she shared with Andy, flowed across the yard.

Avcom had paid for the shoes originally, and to Patti, getting perhaps $5,000 back - delayed - from Avcom was a form of 'gotcha' to ex-hubby Andrew after he manipulated her buyout from the company so that she received around ten cents on the dollar. It was not to be, but she tried.

"Go to Val's house and get those shoes back!" was the first command. I refused - they were not my shoes and she had been personally responsible for the shoe sales. "Then Val is fired!" she started anew. As a stock holder in WIV Cable TV, she was entitled to make recommendations to me, as manager of the firm, but not to summarily fire him on her own.

"Then I will go get them!" and she was off in a cloud of choking dust. Now Val quickly recognised that 'on the street' he could instantly turn the sub-$1-a-pair shoes into at least $10 a pair. So when Patti finally located him, Val was already out reselling the shoes in a Provo Haitian neighborhood. She had to fight her way through a crowd of screaming women to get close enough to shout at him "The shoes belong to me!" and he should immediately give them back. A wild-eyed white lady screaming 'give me back my shoes' mauled by a crowd of perhaps 25 Haitian and Provo women waving $10 bills was no contest; Patti lost and for months thereafter she would spot "My shoes" on feet wherever she ventured on the island. Women with smaller feet than size 10 simply cramped newspaper into the toes, those with larger feet used a knife or machete to slit open the back seam.

By mid-November, Gay and Brian had moved into The Annex apartment while their own 12 meter boat was out of the water and up on dry dock to allow the hull to be scraped clean of barnacles and resealed. Gay and I were already spending up to 12 hours a day together before the move into The Annex - and she had made a supreme effort to erase the wall that Patti had erected between them. It was not that I was spending so much time with Gay that bothered Patti - rather than she had slowly lost control of her own household. It had been her choice - she was going to make us 'rich' in real estate and I was still messing around with cable TV, radio and TV broadcasting, and 'packing

boxes' for the move. WIV's FM radio stations were a particular subject of disagreement.

The stations had been built as a public service, part of my years-prior commitment to the government to create access for the residents to the outside world. I was tapping into satellite fed radio networks, and using ten watt transmitters broadcasting throughout Provo four 'channels' of material that varied from country and western to full-time news. The news station was especially well liked and I had begun doing a weekly 15 minute local newscast on it late in 1988. This quickly proved to be very popular as we still were stumbling along with one weekly and a second biweekly newspaper and radio filled in the local news gaps nicely. But one does not create a 15 minute newscast without some time and effort to gather the news, edit the sound bytes, and finally get it on the air. By mid-1989, in the midst of the great move, John Ramsey had custom built some automated switching equipment that allowed me to drop the newscast into and out of any of the four radio channels at will. It was here that I elected to add to my overloaded schedule by turning once a week times 15 minutes into 5 days a week times 5 (or 7 or 10) minutes.

By wearing a miniature cassette recorder on my belt throughout the day, people were able to stop me in the street with a news item which I would record on the spot for later editing. Then each evening, virtually without missing a night, off I went to the Tower Plaza studio to create the next morning's newscast which I put on tape and plugged into the automation system. Patti's concept of a good evening was one spent in a local restaurant, or dining with friends, discussing real estate. More often than not I would dismiss myself earlier than she to retire to WIV FM, usually to a bombardment of questions from those with us - "What is tomorrow morning's newscast going to say?"; the newscasts were the gum that held loosely knit Provo together. In all honesty, I seldom had that worked out until I sat down to review a handful of scribbled notes, public announcements from local groups, and the day's belt carried tape machine.

The lead story was, consciously, designed to get the full attention of those listening; some revelation which had not yet made it into the 'Channel 16 Marine Radio' rumor mill. As often as not, it would have been sourced from one or more natives who always seemed to know something 'startling' that the white folks did not yet know. And all too frequently the story would highlight something which government would have much preferred not be made public. I could count on a warning or threatening telephone call at least once a week from some

politico or official in Grand Turk because they felt my newscast had stepped over some invisible line they had drawn in the sand.

An example. The islands were battling the spread of AIDS and as Haiti was the center of the AIDS culture in the Caribbean, the several thousand (illegal immigrant) Haitians on Provo were a constant concern. In 1989, the World Health Organisation had placed Haiti at the top of a list of Western Hemisphere countries by estimating one Haitian in 5 was infected with the sexually transmitted disease. During 1988, I had conducted a series of in depth interviews with AIDS victims on Provo for WIV television and produced a three part hour-long documentary set that revealed for the first time the extent of the disease on Provo. The documentary also made it very human because here were Turks & Caicos Islanders, obviously in the last few weeks or months of their lives, right there in local homes on the tube revealing the tragic effects of the disease. It was very emotional television when Freddie (no last name), tears pouring down his face and his hands trembling, described how the disease had turned him from a strong, virile male animal into a 80 pound weakling barely able to hold his head up from his chest.

The official government position was that we had no AIDS cases; none at all. The TV series forced a change in this head-in-the-sand approach which had been crafted primarily so as to not raise alarms in the tourism industry. Now they began to admit a handful of cases but always with the explanation that the natives with AIDS had contracted it while visiting overseas; Haiti or elsewhere, and had returned home sick to await death. In fact, two of the five I located and built into the TV series had done just that and both were adamant in their warnings that others not fall into the same trap.

But, as I editorialised on the radio, if 1 Haitian in 5 carried AIDS, and Provo had several thousand Haitian immigrants living in the bush but walking the streets and working in local restaurants, logic said that every 5th Haitian on Provo also carried AIDS.

Government's reaction to this 'math' was instant. First, "We have very few Haitians here and those that are here have been subjected to health checks before being allowed on Provo." I responded in what was now building into a 'he said - she said' battle of words exchanges, by going to a Haitian settlement where I found 50 or so people to talk with using my cassette recorder, and, an interpreter. I asked how many had been subjected to 'health checks' when they arrived. Not one had. What I did *not* ask was the obvious - "How many of you are here with the permission of the TCI government?" The answer would have been

the same, I suspected - none of them.

Everyone on Provo knew that Haitians arrived after dusk to land on South Shore beaches, 10 to 20 crammed into boats intended to transport half that number. Provo was not the United States (the preferred destination) but to buy passage on a people smuggler to Florida cost upwards of $1,500 - an impossible sum to a Haitian who at home earned $1 a day - while the 90 mile jaunt to Provo went for $150. Moreover, Provo had medical facilities, Haiti did not, to treat ailments (such as AIDS).

Next I went to the local clinics and asked similar questions - how many Haitians come in here with what you suspect is AIDS? The answers were ambiguous because the clinics were subject to government oversight and nobody in the medical profession was willing to risk their status on the island to help me make a frightening radio newscast series even more alarming. One agreed to discuss the matter provided his recorded statements were not put on the air except in my own voice.

My objective was quite simple - create sufficient evidence of a health 'threat' to coerce government into doing something more than they were doing. Twelve years hence, revisiting Provo, I was delighted to find AIDS awareness was every place one looked and especially in the schools. Contraceptive protection was omnipresent; some projects take longer than one might wish but in this case what began as a series of radio news reports obviously bore fruit. And by 2002 a few Haitians, including our Grace Bay house keeper Loonie, had attained 'Permanent Residency Status' which meant they could not be deported back to their home country. Right on!

It was the annual Christmas Party held by Buzzy Marcus; several dozen folks, mostly drunk out of their skulls, listening to Buzzy hold forth about his latest conquests in the business and social world. A mosquito bit me; hardly a headline.

But this mosquito would turn out to be a carrier of a disease - Dengue Fever. Which is - "an infectious viral disease of the tropics causing a fever and acute pains in the joints". Within 24 hours, I had all of the above and then some. The local doctors, never having encountered the disease previously, were brain-stumped although one who had spent time in India, after listing three or four other possible ailments, tacked on a 'PS' kind of after thought mentioning Dengue.

Dengue is totally debilitating. And the timing could not have been worse for we were in the final 15 days of counting down for vacating of Grace Bay. I was for all practical purposes worthless and even my

evening radio newscasts were put on hold. When the local medical folks could not sort it out, off to South Florida to the Mayo Clinic. At this point there had been no connection drawn between the mosquito bite and the ailment; that would come later.

Mayo did what they do best - a 'battery of tests' which came up mostly empty handed. Back to Provo for Christmas and my own private misery. And back to the doctor who had originally penned the 'PS' on his analysis. "Tell me about this Dengue fever business," I asked. Swirling around to his library, he began a dissertation that explained Dengue is carried by a particular breed of mosquito. With two weeks of ailing now history, as he described the affliction in step by step detail I made a list and check marked each symptom I was experiencing; a better than 90% match. I told him and so and he postulated: "Mayo didn't run the right tests - this one can be detected with a specific kind of blood test because the Dengue antibodies stay in your blood - forever. Let's try again, this time at the Cleveland Clinic."

The good news was Dr Menzies was spot on, second time around. The bad news was, "Good luck - there is no cure."

There was some relief from the bone and joint aching with medication but this lasted a half day at best and the medication was habit forming. I could not live the rest of my life addicted to a medication that would sooner than later cause my death anyhow. But for a few weeks, perhaps a month, I could resume the normal activities under the temporary relief.

Knowing, now, that a mosquito on Provo had infected me, I was royally pissed off. Government had neglected mosquito abatement procedures after a budget cut and in my stricken mind this was a senseless interruption to my life. There followed a two week series of radio newscasts that told the entire story and which, predictably, raised the hackles of government.

"There are no Dengue carrying mosquitoes on Provo," the defense began. My medical treatment records became a matter of public debate.

"OK, so *perhaps* one Dengue carrying mosquito snuck in on an air plane," announced a retreating government medical spokesperson, "but there are no more here. There is no reason for panic. Besides, Dengue seldom kills you."

No, but the medication required would do you in, eventually, and in the interim, wishing you were dead would cross your mind several times. It turned out that once bitten, once infected with Dengue, almost any insect bite was a trigger to bring back the symptoms anew. A normal mosquito, a sand fly or as inhabited the beach in millions, sand fleas.

Even a spider. Over time I would have good weeks, the occasional good month, and then without warning two, three or four days of bone aching, joint wrenching agony - always related to an insect bite that would appear, simultaneous to the agony, on a leg or arm. I would return to both Mayo and Cleveland Clinics again (and again) hoping against hope that some magical cure would have been identified since my last visit. Alas, this was not to be.

January 1990. With some effort, we had located a rental home on Provo's eastern shore and my ham radio towers and antennas were the last objects to be dismantled, moving only one to the new home. My health was Dengue-bad, the move exhausting, and Patti was feeling disconnected because her home base, Grace Base, had disappeared. For a decade, half of that before Patti arrived, Grace Bay - Coopers, had been an address of admiration and prestige. She moved to Provo at the top floor of the social ladder, married a local icon whom everyone knew and mostly respected, and over nearly four years, she'd had the time of her life leading an idyllic lifestyle that most can but dream about. Where else in the world and under what circumstances could she have rubbed elbows, bums and giggled with members of royalty, political leaders, movie stars and folks who considered her a member of the elite?

I sensed that she no longer felt I was an essential ingredient in her life. And I was correct. She had not come to that conclusion yet - I would hurry it along.

Moving out of Grace Bay was traumatic for me. This had been home, a very special home documented by TV shows such as Entertainment Tonight, and the core of what I tried to do for and on behalf of the islanders of this tiny coral island had all roots planted at Grace Bay. And now I was without roots, moving into a house that was neither home nor mine. It was in the middle of this that I decided to reward a couple of local graduates of our ham radio course with a trip to Miami to attend an annual 'hamfest'. Husband Brian and his wife, my helper, Gay and two others would make the trip and at the last minute I decided to go along as well. Patti thought otherwise.

"This is our money you are spending," she began. In fact, it was not - it was mine although clearly in Patti's mind, that 'line' was now blurred.

"I want to go, too," she started anew. With Andrew she had attended dozens of 'hamfests' and found everyone of these totally unappealing; unless, of course, the Hatfields had a trunk of 'goodies' to peddle for non-reportable cash. Talking nicely to folks who wore Mr Greenjeans

over-the-shoulder pants and funny hats with their ham radio call signs embroidered on the brim was not her cup of tea. I told her I was going, "alone."

"Not quite," was her retort. "Gay is also going."

Indeed. Along with husband Brian of course. Patti saw, or felt, something I did not. That the relationship between Gay and I had passed some sort of plateau. Those twelve hour days isolated on a hilltop wiring up two-way radio repeaters had apparently been following a course of its own will and in Patti's mind being away, together, for four days was not a good omen.

In fact, she was ahead of the curve. At some point in any relationship, physical activity becomes a possibility. In my first evening with Patti, in her home in Richmond, that took about an hour. In my courting of second-wife Susan, perhaps two months. In the case of my first-wife Carol, even longer. Gay and I had been working closely together for ten months at this point, and no such circumstances had evolved. As I was twenty years her senior, if I had any thoughts about her at all, they were based upon admiration for her skills and her uncommon understanding of human emotions.

On the second night of the Miami Hamfest, Dengue Fever relapse struck me. We had planned a night out in Fort Lauderdale, including a movie. I was a no-show under the circumstances and Gay, expressing concern for my being 'left alone', elected to stay with me. Nobody, including her husband, gave it a second thought.

In fact, we ordered in pizza and with me propped up on pillows she began to tell me her most private and personal thoughts. Brian was developing wander-itch and he planned to put their boat back into the ocean and head off for the eastern Caribbean. She had come to the end of that phase of her life, and made up her mind to abandon Brian and the boat 'as soon as the police and medical two-way radio systems are finished'.

"What would you do?" I asked.

"I won't stay on Provo; first, off to Ireland to visit my sister and parents and then - who knows?" All of this coming from the most stable, level-headed individual I had met in decades. She had kept her thoughts and plans bottled up for the entire period we worked together and that alone impressed me greatly.

"What about you?" she asked. "How long will you stay with Patti?"

Fortunately Brian and the two fellow hams were gone for several hours. In that period of time, I gradually realised that if she could 'disappear into the sunset' on a PanAm flight, perhaps I might do so

as well. It took lots of guts to do this and I had to admire her determination to 'turn her life around' in one bold move. I was left with plenty to think about.

The first day we returned to Provo, still reeling from Dengue after effects, I retired to bed. Gay went to work on the remaining technical problems associated with the medical radio repeater system. I slept badly, awoke and reached for a special handheld radio which allowed me to talk directly to her, no matter where she was on the island, without concern that anyone might overhear us.

"I want to go with you," I began. "There is nothing to keep me here - once the repeaters are functional."

And so it began, 45 days of clandestine planning which would culminate in a trip she and I would make to Grand Turk to turn in a dozen or so new ham radio class graduate names to the government office that would in turn issue them their licenses. We were expected back on a late afternoon flight - but in fact, we would be on a PanAm flight from Grand Turk to Miami with no plans to return. Ever.

To fund this, I went to Barclays Bank and arranged to convert $50,000 of my house sale reserves into travellers checks and then through a local attorney, given the 'Power of Attorney', the ability to transfer additional funds from my Provo account to wherever in the world I might happen to be. A regional American Express office in Fort Lauderdale made the next conversion tidy and quick - half of it was reissued in Gay's name and off we went on a ten day jaunt throughout the Florida Keys. When she left Provo, everything she considered important had been packed into a single suitcase and anything that did not fit there had been placed in a box and mailed to her family in Ireland.

Of course when neither she nor I returned home from Grand Turk, a certain amount of panic followed. Brian found a lengthy letter awaiting in their boat - a 'Dear John' communiqué that left him with little hope he would ever hear from her, directly, again. Knowing she had gone to Grand Turk 'for the day' with me, he immediately drove to the Cooper home to demand Patti tell him 'what is going on'. I left no note but Patti had driven me to the airport that morning and had noticed Gay seemed to have a suitcase with her - which she thought 'odd' for a day trip to Grand Turk.

The pieces gradually fell in place and by day three Patti had contacted American Express and Visa with a panic message. When I tried to charge a dinner on AMX, the American Express operator asked to speak with me. I knew there was something strange here - we had the day prior lodged $10,000 in that account and were well into the posi-

tive column.

The AMX operator: "Your wife wants you to call home, now!"

Similar messages dogged us from Miami to Key West, each time I attempted to charge something on the Platinum card. I finally reached a supervisor, explained what was happening and urged her to discontinue the harassment. I possibly told the supervisor slightly too much information for her answer was, "Look, if you tire of being with the person you are now with - Gay is it? - would you like my home phone number?"

I never had another AMX operator 'intercept message'.

Gay would in fact fly off to Ireland at the end of our Keys tour and I decided a brief visit to Provo was in order to allow me to start the legal proceedings which were now inevitable with Patti. She had no warning I was arriving and I took a taxi to the eastern shore home we had rented.

"You a visitor here?" asked the taxi driver.

"No, but you are," I answered. What were the odds that someone who did not recognise me would end up being my taxi driver? Pretty thin - or perhaps it was another indication that the time had come to leave Provo. Never mind - my mind was made up.

"So - you came home!" said the lady of the house as I walked through the door. "Tired of sex with a kid?"

Oh - this was going to be a very long 72 hours - the maximum time I expected to stay on the island. Just long enough to clue in my new attorney (I could not use Clare Skatfeld as he was too deeply involved in WIV, cable TV and our personal lives.), and pack a few personal items that I felt naked without. So much of my life for Provo's decade and the twenty or so years prior had been packed up and placed in storage when we left Grace Bay that I knew without question someone I trusted would have to return at some future time to redirect the boxes to a safe harbour.

72 hours extended to six days - Patti decided it was unsafe for her to be in the same 'home' as I and moved for the interim to Dr Bonnie's house which immediately brought Ed and Bonnie Ericcson into my discussions with the lady from Virginia. That gave me freedom to pack up ham and other important-to-me items, alone, in the eastern shore house, moving them to a safe area where months later my son Kevin would retrieve them for shipment on to California (and eventually New Zealand - but I am well ahead of our time line here).

Patti, while Gay and I had been cavorting in the Florida Keys, had hopped aboard a series of planes and flown to Bermuda where she

was the house guest of one of those real estate folks whom I found socially amusing but dangerous to be in bed with. Patti found this particular Bermudan quite the opposite - to be in bed with - which she justified because, as she repeatedly said, "You have been off having sex with that kid."

I found her accusations unworthy of defense, primarily because she had two creeds in life - how many people she could 'screw' - in both the financial and physical sense. None of our separation of assets was going to go smoothly - that was obvious even before the six days were up.

It was equally apparent that virtually everyone on Provo I would bump into knew as much about what was happening as I did and what they did not know had been postulated with varying shades of truth over drinks in local bars. A lady who had attended and graduated from one of our ham radio classes, Peggy Porter, typified the reaction of those I saw while there.

"How could you run off with a younger woman?" she began as I stood in front of BWI Grocery. Peggy was ten years my senior, and while once voluptuous and certainly a typical American ex-pat living on Provo very much enjoying the unconventional life style that was the island in the 80s, took my action personally. "We could have been very pleasant, together."

If I had any doubts about the wisdom in leaving, Peggy would erase them, forever. I was not running off 'with a younger woman' - I was suddenly aware that if I stayed on Provo, I would die an unhealthy and unhappy man. Provo had changed, and I had not. It was time to say adios and head into the sunset.

While I had been away for ten days, Patti had not only tried to have my American Express and Visa accounts closed, but she also went to Barclays to attempt to have the money I had there from the sale of the Grace Bay home transferred into a joint account we maintained. I found this especially repulsive and made a brief stop at Clare Skatfeld's office to register my protest.

"She did this on her own - I assume she failed?" Clare began. She had but only because the Bank Manager interceded as she tried to pretend the transfer was an appropriate action with a counter clerk. I discovered this when arranging to have the funds remaining left in a trustee account managed by my newly engaged local attorney. He, Robert Milne, would also be left to sort out the 50+ acres of property, my stock in WIV cable, the radio stations and Patti's 'Tourist Shoppe' business.

What might have bothered me were mechanical things; the continued operation of WIV Cable and the radio stations, for example. But with nearly two months to plan our exodus, I had back stopped myself even if nobody at the time realised what was happening. For cable TV, I was counting on Canadian Jack Carnegie, who had been instrumental in arranging for offshore 'subscription services' to channels such as HBO, to fill my shoes. Jack had spent half a decade in and out of Provo, had bought property there, and was available on a moment's call, as Patti well knew. And he would be called, shortly after I 'disappeared'.

For radio, there was Mike Scism, a ham radio operator from Texas who had been down several times on a 'ham holiday' and who, as it turned out, was planning a move to Provo at about the same time as I was leaving with Gay. Mike might not have the ability to be on air, but the stations would stay functional under his tutorship. For on the air news, another Canadian - Cathy Megna - had been in a news training program I had initiated for six months and she was already doing news on days when Dengue did me in. She would keep the tradition if not my intensity of 'local news' going in my absence.

Patti had decided, under the tutelage of her Bermudan bed partner friend, to open Provo's first tourism shop in 1988; appropriately named, "The Tourist Shoppe." To keep her initial rent down, we had combined a WIV cable office (where people came to sign up for cable TV or pay their cable bill) with her 'Tourist Shoppe' in a new shopping arcade built by her Bermudan friend. Here tourists could find T-shirts, sea and conch shells, silver spoons festooned with the Turks & Caicos crest of arms, books about Caribbean life and a wide variety of stylish, 'hip beach clothing'. When the shoppe began having $1,000 sales days, Patti found the workload significant and as Gay had recently joined on as a hired hand to assist me in getting us moved away from Grace Bay, it was decided that Gay could also close out the shop each night. No, Patti was not offering to have the shoppe pay any portion of Gay's $1,000 per month.

I found this an unreasonable demand but Patti was quick to point out, "We are allowing them to live in The Annex rent free - it is the least she can do." What it did was to add two hours to Gay's day, seven days a week - making the trip to the shop, taking inventory of the sales slips for the day, counting and verifying the receipts, filling out the reporting forms, and then closing the shop. She normally did this while I was independently at WIV radio preparing the next day's newscast and on rare occasions I would accompany Gay to the shoppe

concerned as I was that she was transporting a thousand dollars or more in cash, back to Patti, in the dark of night. Provo was hardly a criminal hotbed but folks had been held up for far less and crime was a growing concern. Patti dismissed my concerns with a derogatory remark about Gay being a 'big girl now' totally over looking that she was being asked to do something which had not been part of her job description and for which she received no additional income.

So when it came time, ultimately, for me to ask for my 'share' of The Tourist Shoppe in dollars and cents, as a part of the 'acquired after marriage' divorce settlement, I was torn between making a major case for my share and writing it off. Ultimately, I would settle for $1, tired as I would be in another six months of the haggling that erupted surrounding my no-notice departure from this island of fun and sun.

Within days of my leaving, Patti immediately announced her 'poverty' and engaged in months of hand wringing in front of anyone and everyone who would listen to her story.

"He took all of our money with him, leaving me with nothing to pay the bills. I am destitute!"

Naughty me, but in fact, the only money I 'took with me' was the nest egg that came from selling my home on Grace Bay Beach. In fact, my WIV cable salary was appropriately terminated and Patti had herself appointed in my place as Managing Director, allowing my former salary to fall to her. Prior to my departure, she of course had a plan to 'rescue' my house-sale nest egg for her own purposes and by freezing her out of that money some of what was being planned without my approval disappeared as an option. We would battle, through attorneys, for the better part of a year as I, property piece by property piece, divested myself from Provo. None of it was pleasant, there was no winner here although Patti would end up owning or controlling virtually everything I had accumulated on Provo over ten years for a fractional part of its true value. What she 'lost' when leaving Andrew was more than made up on Provo.

When Gay returned from Ireland, she had her own set of divestiture problems. The sail boat she left behind on Provo was registered in her name and had been purchased by her. Brian wanted her name off the ownership title which was her plan as well. But as he had no way of paying for it, she proposed that a joint investment account held in their name in Ireland be turned over to her. After a few weeks of falsely hoping she would return to him if he made the swap difficult or impossible, he finally caved in and released his share of the Irish account. Unfortunately, as we would discover years later, the amount

of money actually available had been drained by a fund manager under the guise of 'management fees' so Brian ended up with the boat and Gay ended up with heartache.

We had no real plan and when you have no plan, South Florida is as good a place to be as most; especially if you are a Jimmy Buffet fan. The restaurants are abundant, the movie theatres frequent, and short term rentals wherever one turned. Additionally, May was NBA playoff time and Gay's passion for the sport (and the Los Angeles Lakers) kept us glued to a local cable service to not miss a game. After five years of being 'at sea' she had a great deal of pent-up enthusiasm ready to uncork for the finals. Our instincts told us we could not be inactive for very long and as travelling broadens the mind (while thinning the pocketbook), that seemed like a good option.

Neither of us wanted to become US residents again although we both trotted down to secure Florida driver's licenses; 16 years later mine still rests in my wallet, renewed several times by mail. Our first major acquisition was a Compaq laptop, which unlike those of the Ed Grotsky era, had become at least small enough to fit beneath an air plane coach seat. I had revived the Carol Sue Rosin and Ted Turner outline and we spent tens of hours discussing why their child would have been born in orbit and still resided there while the two parents were on the ground. It was obvious to me that Gay could one day blossom into a quality fiction writer if the circumstances ever allowed it to happen.

The next acquisition was a 1963 fully restored high quality Corvette. This was the year that Chevrolet discovered how much better their sporty car would sell if they introduced muscle; (much) larger engines, heavy duty brakes, and a variety of transmission and rear axle ratios. This 'beefier is better' attitude prevailed through the peak high performance Corvette years of 1965 - 1967. Our tan colored removable top version had all of the paperwork that aficionados demand - original parts only, nothing added, nothing subtracted. We located a suitable rural Florida road and found it would reach 60 mph in under 6 seconds and the top speed - was, we wouldn't know that until a month later on a Wyoming highway working our way west. Suffice to say in a top-speed test I began to worry about the stress we were placing on parts originally manufactured 27 years prior long before we approached the red line in top gear.

Finally, as we prepared to leave Florida, a set of airline tickets that began and ended in Los Angeles with six weeks in New Zealand stuck in the middle. Gay had been intrigued by my stories relating to an

earlier visit I made to the southern hemisphere country and then confided that from the time she was in third grade at age 8 she had 'known' that one day she would live in New Zealand. With no plans to the contrary, this seemed like a suitable opportunity to explore just that possibility.

Footloose and totally fancy free

We arrived in New Zealand after a carefree transcontinental week that included a weekend in Kentucky where the annual Corvette Owner's Club convention was underway. It was June turning into July, the weather was brisk, and more damp than not. The guidebooks we have acquired to plan our New Zealand sojourn turned out to be terribly behind the current times but as we would quickly discover, New Zealand as a country was emerging from thirty years of socialism and lifestyles were changing almost weekly. Great cleavages appeared everywhere. Milk, subsidised by a remaining socialist legacy, was still doorstep delivered in glass bottles topped with cardboard snap off tops. On the other hand, prostitution had recently been moved from illegal to a 'profession' complete with government sponsored health care for trade workers. The American dollar was nearly two to one - $15 New Zealand (half that US) would buy virtually any dinner meal in Auckland and motels gave you a local newspaper, container of milk, full kitchen, in room videos, and a spacious two + room facility for typically $30 a night ($15 US). Tourism, overseas visitors, had not yet caught hold and virtually everyone we met would engage us in long conversations about 'the outside world'. Some compared 1990 New Zealand with the American Midwest of the 50s - the Leave it to Beaver days. They were not far off.

Our no-plan plan was to rent a car and start driving; six weeks of following our nose, talking to people, learning about the country and identifying the reasons why we might want to migrate here. In the middle of this, son Kevin would join us with his best pal Jason in celebration of his 21st birthday.

Towards the end of the first week, it occurred to Gay we were paying more for the car each day than the combined spending for food and lodging. Rental car agencies were still stuck in the past, competition was a foreign word in that limited area of commerce.

"Let's buy a used car, drive it while we are here, and then when we return, it will be here ready to go," she suggested. A search began and we found a rather ancient (1974) Jaguar XJ6 four door sedan that appeared to be in 'good nick' (Kiwi for OK condition) at a very decent price. A prior owner had repainted it a powder blue; that being the primary negative. Kiwi cars retained the full history of their owners in a glove box plastic bag in that era and I was amused to find the first owner had been a music promoter who had the car imported so that Mick Jaeger on a tour to New Zealand could be ferried around in something approaching 'style'. And if we decided not to return, we'd resell it as a piece of musical history!

As six weeks approached, we pondered an extension - to perhaps ten. In the course of meeting people and asking questions, I had discovered that something brand new was coming up shortly - the government was going to auction off for twenty year periods some microwave radio frequencies. We engaged a local attorney, completed the one-offer-only auction forms, and left money on deposit should our bid be successful.

Television in New Zealand was limited, in 1990, to a pair of channels, both owned and operated by the government. The television 'day' started sometime between noon and 4PM, and channels closed down around 11 each night. But there was talk of a new, third channel to be privately owned, and radio which only five years ago was also under the exclusive control of government, was now exploding with dozens of new stations in the private sector already operating in the major centers such as Auckland. I saw in the microwave frequencies on offer the opportunity to create 'wireless cable' but alas I would not be the only one with this vision. When the sealed bid documents were opened, we were embarrassingly low against major competitors who were willing to pay upwards of NZ$200,000 for a single microwave channel. I learned something here, although not immediately. The local government television network and the local government owned telephone company saw in these frequencies not an opportunity for them to expand their operations but rather a fear that somebody else - not them - might do just that in competition. So they spent millions of dollars to buy frequencies which 16 years later have never (ever) been used by anyone for anything. The Kiwi mind set, which would take

me several years to better understand, was that 'competition is for chumps' and a monopoly was far better - in their minds. As long as existing television and telephone 'sat on' these microwave frequencies, there would be no 'wireless cable' competition. Government felt they had done their duty by offering these potentially competitive frequency bands in an auction format. When other government monopolistic agencies bought virtually all that were offered - well, bugger! The 'free market', in the hands of bureaucrats operating monopolies, was still stacked against entrepreneurs but that would change - slowly. Never mind - had we actually 'won' one or more microwave frequencies, I would have been faced with creating the country's first pay-TV service which in retrospect might have turned into one of those sink holes that swallows money at an alarming rate. I lost the bid and am now thankful.

Dengue Fever was a constant menace while in New Zealand, so upon returning to the states our first stop was back to the Cleveland Clinic in Fort Lauderdale for another series of tests. Then we planned to fly to Ireland so I could, for the first time, meet Gay's family. As we finally had the disease identified, the hope was that tests specific to the mosquito's left-behind antibodies might identify some chemical that I could ingest routinely to negate the sporadic attacks that came whenever something bit me. The Clinic booked me in over 5 days for several hours each day, an exercise which included plans to do such outrageous experiments as sticking my arm into a plastic container filled with buzzing mosquitoes so they could in turn monitor my blood as and after I had been bit. As desperate as I was to get past Dengue attacks, I went along with their Dr Jeckyl plans until a lady apparently with limited qualifications strapped me onto a gurney attaching probes to various parts of my body. Her intent, using a piece of machinery which, as it turned out she had neither been trained on nor understood, was to see at what level of voltage as applied at the machine created a 'tingle' between say my left foot and my right arm. She had an hour to connect various portions of my body to the probes, then apply a stepped voltage to the machine and wait for me to say 'ouch', 'stop' or 'turn that f-ing thing off!' as was appropriate to my level of pain.

With a basic understanding of electricity, and forty years as a ham radio operator who had on many occasions been 'tingled' when some part of my body accidentally came into contact with power supply voltages, I was apprehensive. As this was the final day of so-far inconclusive testing, my emotional tolerance level was close to overload.

"There are different settings for the voltage applied and the amount

of current that can flow before the machine shuts down," I pointed out to the testing lady.

"I have been trained to not touch this control," she responded, indicating the current level permissible. It had several manufacturer-marked positions including as much as 1 ampere. The companion voltage levels varied from a modest few volts to a spine wrenching 1,500 volts. A near lifetime of ham radio shocks instantly told me that 1,500 volts and 1 ampere was fry-Bob time.

"Before you begin, could we verify where the current control is set?" I asked.

"Nobody ever touches it, in fact the knob is loose so it cannot be reset" was her response, grabbing it and twisting. It turned in a hollow way, indeed it was not doing anything but rotating on a shaft while the actual control stayed in a pre-set position.

"That's what concerns me," I continued. "Loose as it is, nobody can change it but we have no way to verify what the setting might be." And I launched into a brief technical description of the effects on the human body when the maximum voltage (1,500) and the maximum current (1 amp) were applied between your large left toe and your right ear lobe; or any of several other points she planned to 'connect'.

The explanation was lost on the technician - her training had apparently been limited to moisturising discrete body parts, connecting a small clamp with a wire attached to those points, and then turning the machine on while waiting for the patient to indicate various degrees of discomfort. After 15 seconds or so at a low voltage, she stepped the appropriate control upwards one or two notches at a time until I said 'Uncle' or something similar. Then she turned it off and made some notes on her Cooper-Test sheet.

The obvious happened. At a rather modest voltage near 100 a shooting pain grabbed every part of my body and with limbs flapping and my body bouncing up and down on the gurney bed there was no necessity for me to utter even one word. Which was good because my larynx was frozen. Gay was in the room observing all of this and she moved faster than the technician to shut down the evil machine.

When I could speak again, I muttered something uncomplimentary about the skills at Cleveland Clinic, swung my legs off the table and with Gay's help began to redress.

"But we are not finished," began the technician. "We have several more voltage levels to complete!" My answer, amplified by Gay, can be anything you believe appropriate under the circumstances - and you'd not be far off.

It happened that they had one more non-electrical testing sequence scheduled but Gay and I went straight to the front desk with a demand that we be, "checked out - we are finished!" When we tried to explain why to the unfortunate lady on duty, she rang for a superior and as we related the incident Gay was rummaging around in my Lands End briefcase searching for a small screwdriver set I always carried.

"I wish to go back to the testing room and verify the settings on the machine," she suggested. By retightening the knob that someone had loosened on purpose, ostensibly in the 1/100th of an ampere safe mode position, she could instantly see if it had been left at a higher current value, in error.

The management type saw it differently; a potential lawsuit.

"No, *we* will check the machine," was his response and after five minutes of increasingly heated discussion we saw there was no chance we would be allowed to satisfy ourselves why a seemingly safe voltage and current would have sent me into convulsions. I looked at Gay, she signalled me it was time to leave and we turned our backs and strode out the door. The front desk lady, doing what she had been taught to do, was the last voice heard as we exited the building.

"But they have not paid us for the tests!"

Right on. Moreover, we would not be returning to the clinic nor recommending it to anyone else - ever. Yes, eventually a lengthy letter caught up with us after being forwarded several times in which they denied any responsibility for what happened. It was over the signature of their general counsel which spoke volumes for their fear that out on the street, loose, I was a lawsuit waiting to be filed. Rule number one in America: "protect yourself from lawsuits."

If there is a pill-cure for Dengue after effects, it remains unknown to me. Now, going on 17 years since a Buzzy Marcus mosquito bit me, I am as subject to 3 to 4 days of 'down time' as I was in 1989. Gay oversees my precautions, I spray my body to send mosquitoes and bugs in the opposite direction whenever it appears I might be entering a danger zone, but invariably once per month average I will be bit and the symptoms will rush back to the surface.

Gay and I returned to New Zealand in late November 1990 and immediately set out on a course to be legal residents followed by Kiwi citizenship. Step-one was to find a home, a place to put down our roots. Ham radio was the dictating medium here. We wanted a physical location where we would be allowed to operate on a particular amateur band (6 meters or 50 MHz), and there were few in the country so designated. Fortunately, at the very northern tip of North Island,

we had that ability and coincidentally, being the point in the country nearest to the equator, this was also the least winterised segment of the country; locally, 'the winterless north'. Weather wise, we are in the equivalent of the 'San Diego climate'.

The same attorney we had used to file our bid for microwave frequencies listened attentively to our plans and suggested not only a region but a specific person (a client, as it turned out) who just happened to have 53 acres of hillside property available. It was a quick sale after Gay and I stood on the hillside overlooking Doubtless Bay and she suggested, "I could live here." In the entire piece of ground, not one tree grew - they all having been cleared for 'paddock' to graze cattle decades before. We would change that.

We were living, as we would for the next year, in a motel 40 miles from the property we were buying and for the next 12 months we commuted both ways five or six or even seven days weekly to oversee the construction of our new home. We elected to be our own 'contractor' and found local carpenter skills to put our dream house together, a pine board at a time. While two carpenters and a helper labored to create the 5,800 square foot house and attached green-pool house, Gay and I would be burying thousands of feet of PVC and conduit through which cables and control wires would interconnect the five ham radio towers and 5 meter satellite dish. We had the satellite dish functional long before the house was liveable, and the workers took some amusement by sitting in the concrete enclosed garage watching American television which we promptly had showing on the TV set propped up on cartons there.

It was not long before some locals, representing the local 'Bowls Club', appeared to ask if they could also 'see' the television. With two government TV channels, neither of which were heavily into sport coverage, the American TV programming we had in our garage with live international sport was a major draw card. When a significant cricket, rugby or soccer ('football' down here) event was scheduled, as many as 50 local folks filled our unfinished garage at odd hours.

"Can we have this same reception down at The Bowls?" was finally broached. The Coopers Beach Bowling Club, attractive primarily to folks 50+ with idle time on their hands, was (and remains, today) 1,200 meters away from our homestead. In the cable TV world, 1,200 meters is one of those 'don't bother me with minor league stuff' distances - a piece of cake, as it were. Just bury some coaxial cable in the ground and Bingo - out pops TV at the opposite end. After spending several decades building more than 50 community-wide systems, some

with as much as 110 miles of coaxial cable, 1,200 meters sounded like a Saturday afternoon project. And I made the mistake of characterising it in that way.

I did not think of this as a 'cable TV system', initially - just a piece of cable run down a trench the Bowling Club members would supply to connect up a local cultural center (or centre, as it is spelt in New Zealand). But, between my house (which was still under construction at the time) and 'The Bowls', the cable would run past perhaps 25 homes, some of which were residences for members of The Bowls.

"So if you are going by my home at the back fence line, can't you run a wire into my TV set as well?"

Now that seemed more like a cable TV system.

"If you are going to connect Ian to your cable, how about me - I live just across the highway???"

Yes, we were talking cable TV here; the real thing, even if on a small scale.

In 1991-1994, New Zealand had no real cable TV; certainly nothing of the magnitude one found in the USA or Canada. A few folks had erected a community antenna on one of New Zealand's abundant hilltops, stretching some wire down the hill to homes shadowed from direct reception but in both a technical and legal sense, it was not cable TV - more of a 'shared antenna' system (see, "TELEVISION: The technology that changed our lives", by this author).

Nobody was 'importing' TV from outside of New Zealand for distribution through wire (or cable) and my first challenge was to define how the rules were written. What I found was 'no rules'. Hummm. What I was thinking about doing, on a very small scale to serve my immediate neighborhood, was in fact simultaneously being openly promoted near Wellington. An American second generation cable TV guy, Todd Klindworth, was funding the rebuilding of one of the shared antenna systems in an area known as the Kapiti Coast into a real cable system, and he planned to import TV direct from America. His press releases pre announced the intentions and that in turn raised serious legal and competitive concerns in a number of quarters, including the government owned Television New Zealand service. Klindworth's dad, John, had been an acquaintance and friend dating back to 1960 and my first Television Horizons publication prominently featured his activities in Minnesota, Wisconsin, and the Dakotas. Todd was a nouveau-riche 'kid' with something less than his father's conservative-based common sense and what he was doing with his all too frequent public pronouncements was scaring the crap out of the New Zealand broad-

casting industry.

To make his 'threats' to import direct American TV seem more real, he located a huge, monster size, 15 meter or 49 foot satellite dish which in fact was producing in his office center watchable if not high quality TV from the likes of HBO and Showtime. What this did, predictably, was to rush through Parliament a new set of laws redefining 'copyright' as it applied in New Zealand, making it illegal for someone like Todd to import HBO or Showtime (or other) USA programming short of having permission from both the American source and the New Zealand authorities. He would end up going to court and a 'tribunal' to argue his reception of ESPN was legal; he lost.

All of this would have a direct bearing on my own minuscule plans to connect up The Bowls and a handful of homes along the way. Unlike, Todd, I found a way to create a legal license for ESPN (which is what The Bowls most wanted) and then began looking around for additional imported TV signals to make cable TV more than a one channel service.

If all of this seemed contrary to why Gay and I left Provo, you might find comfort in knowing we were having the same thoughts. The foundation for the house, located appropriately in the community of Coopers Beach (yes - a total coincidence), was poured in late July 1991. We would first sleep there in June 1992 and the last worker would vacate the property in August of that year. Gay and I would also spend most of July and August in the Azores Islands, Ireland and the USA so our moving-in was a prologue to actually living there full-time after our jaunt to the opposite side of the globe.

The division of Provo resources had begin late in 1990. Patti first wanted to acquire my controlling interest in WIV Cable and between that negotiation starting in mid-1990 and the final one over my ownership in the Tower Plaza office building in 1992, hundreds of faxes (in the days prior to e-mail) flowed in both directions; not all of them civil in tongue nor complimentary in language. Attorney Milne's communiqués followed us around the globe and the 30 days of complete isolation while in the Azores only added pressure to his task. Patti was faced with a division of real estate properties, some of which I had purchased before she and I were married and they, therefore, were mine to do with as I wished. She of course disagreed, still falsely claiming I had 'run off with the cash' when in fact it was not hers at all. To fund the New Zealand 53 acres, the construction of the home there, and our gallivanting about the globe, required that every month or so I dispose of another Provo asset - all part of the plan. I had a

master sheet of all assets on Provo, an asking price and a column to list selling price which had to be weighed weekly against the demands for cash in New Zealand. Patti had another problem.

Because she had gone off making deposits on various pieces of land during her 'queen of real estate' era, additional payments were coming due at regular intervals. She was, I worked out, faced with tapping into her personal US based stock-held assets or selling one or more pieces of property every month or two to keep payments going on the balance. It was a juggling game that would have placed extreme pressure on my Grace Bay home sale assets had I stayed with her - and I was totally pleased to be rid of that scenario.

Ultimately, I gave up my stock in WIV Cable for around half of its value and one year hence she and the balance of the stockholders would sell out to a Florida based business. On a piece of real estate property-by-piece-of-property basis, she would ultimately pay 50 cents on the dollar but with that came the risk that the property might depreciate before it was sold. None did.

Of course eventually the money coming our way would run out; I would have to find some new way to pay the New Zealand living costs for Gay and I. Old habits die, if at all, with difficulty and by 1994 I found myself (and Gay) involved in publishing first one and then two monthly publications; *Coop's Technology Digest*, and, *SatFACTS Monthly* (magazine). Living in New Zealand was a fraction of the cost of maintaining a similar life style in, say, Fort Lauderdale, so for a few thousand dollars per month 'net income' we could (and would) live comfortably. It was during 1994 that Gay also came to the long debated, reasoned conclusion that as she was approaching 40 years of age, if there was to be a child of this union, it should happen quite soon.

Nobody spends more time planning, considering all of the options, than Gay VanZandt Cooper. The lady who handed me a written nine month schedule for clearing out of Grace Bay was equally detailed about 'how' and 'when' she would conceive. It would be late in 1995, fit in, around, and after, a planned visit to Sri Lanka to spend time with Arthur C. Clarke, and a pair of satellite conventions I was agreeing to attend and co-host in (of all places) Thailand during 1993 and 1994. Gay would be 37, I 56.

Between 1992 and 1996, if we were not in some non-world center such as Thailand, we would spend a month or two at Lake Tahoe or the eastern United States; all of which would draw to a close when the child was born, at least for a period of time. Gay elected this era to incite my interest in family genealogy using her significant scholarly

skills to comb previously untapped resources in an attempt to create a family tree for both of us. She must have written hundreds of letters, in the days prior to e-mail and Internet, and our trips to America in 1992, 1993, and 1994 were built around spending hours and days at weed infested cemeteries, county clerk record offices, US census record offices and studying 150 year old clippings uncovered at libraries and newspaper offices from the panhandle of Texas to Boston.

One incident illustrates why perseverance pays off and how when you are on the very edge of abandoning a project, often a meteor streaks through to rekindle your enthusiasm. We had run into dead-ends for her mother's family in Texas, her father's family in Arkansas, and my mother's family in upstate New York. We had all of the resources available and nothing fit beyond three generations back. Now we were honed in on the Cooper family and after spending several days calling every Cooper in the telephone book, and visiting several, in a western New York county where I knew my grandfather had been raised, we were leaving the town of Albion (New York) at dusk after spending two days at the local library with no real results. A large, impressive cemetery was on our right as we left town. Gay:

"Stop here - one more shot."

Inside we located a lady who was after 45 years as manager of the cemetery retiring at 5PM - 15 minutes hence.

"Cooper? - wait here." She disappeared into a massive file room where as good fortune would dictate she had retained every single death notice, in family folders, for the entire period of time she managed the facility. Moreover, she was carrying on this unusual procedure because her predecessor and her predecessor's predecessor had done the same. In one file folder, as she dropped it on the desk before us, was more than 100 years of Coopers.

Better yet, she, her predecessors, had kept sub-folders. All of the Coopers who were related by the published death notice details of surviving family were clipped together. In sixty seconds time, we struck the mother lode.

I believed my grandfather as a single child. In fact, we discovered he was one of nine. And most of the nine had children of their own. Moreover, a child of one of my grandfather's brothers lived right next door to the cemetery; a real, live cousin barely 200 yards away! It was with considerable trepidation that Gay and I knocked on Cousin Ann's door, introduced ourselves awkwardly, and then smoothly spent the next five days there as a member of a much enlarged family that we did not even know existed. Laden down with copies of the cemetery files,

we set up permanent camp in the Albion library and across the street in the county offices for several long but rewarding days. When we had combed every resource twice, Gay had the tools to put together not only my father's Cooper family but my grandmother's family as well. Here we struck something much better than the mother lode. My grandmother was a 'Britt' or as they had spelled the name in the 1700-1800 era, 'Brett'. The family had spent several hundred years in western New York, within 50 miles of Cousin Ann's home, and one of the family members, a great-uncle to me, had in fact created a family tree which took us back to, of all places, the Mayflower.

Now many folks claim to be descendants of the Mayflower's 160 original settlers, and well they might - there are more than 1,500,000 of them today in America (obviously a prolific group). Gay and I would later take our research east to Boston for a day at the Mayflower foundation, where all of our records tallied. As Gay uncovered the family tree history, one name set kept recurring - 'Seth Brett' appeared for seven generations in sequence at various locations from Massachusetts to Michigan as the 'Brett' family steadily migrated west with the development of the American interior regions. As my grandmother was a "Britt," my father's middle name was Britt, as well as my own, so we filed that information away for possible use should we one day have a son of our own (a relative in the early 1800s had made the Brett to Britt spelling conversion; no reason located in our research).

Seth Brett Cooper was born seven weeks before his due date, by caesarean operation, on August 11, 1995. Gay had devoted her life for seven months to being totally prepared for what we expected to be a normal birth delivery late in September. Neither she (nor I) were prepared for seven weeks premature. Gay's water broke midday and by 5PM she had been carried by red light flashing ambulance over 100 miles to the nearest hospital with the skills and equipment to deal with a baby of that much short term. As coincidence might have it, August 11th was the date we were mailing out our monthly SatFACTS Magazine and just as her situation became critical and we went to panic mode I had been completing the labelling and preparation of several thousand copies of the magazine. Under more normal circumstances, it would have gone to the post office in the town of Kaitaia on the 12th.

With her ambulance ahead of me by 90 minutes or so, I followed to Whangarei's hospital with the rear of our 1974 Jaguar laden down with magazines, stopping off along the way at a way-station post office in Kerikeri to 'dump and run' explaining in a totally incoherent manner,

"Look - I know you are neither equipped nor ready for this mailing - but my wife ....." and away I sped.

Gay had exercised and eaten following what she believed to be the best set of recommendations for seven months. We had several doctors advising us/her as well, and setting aside that seven weeks out in front we did not have her 'emergency hospital grab-and-go' bag ready to grab or go, this had been a well executed, well planned, carefully monitored pregnancy from day one. Seth Brett was early but he still weighed nearly 6 pounds - causing the doctor who made the cut and reveal delivery to confide in both of us, "he was ready to be borne - he may be early but he is certainly not what we would normally call a premature child. Had he gone full term, I have no doubt he would have weighed 12 pounds or more." For those unfamiliar with baby sizes and weights, 12 pounds would be in the same class as Hagrid of Harry Potter fame.

Fast forward ahead to Seth Brett age five. He has heard, memorised, the story of his early birth numerous times and now must sit through his mother recounting it to yet one more innocent and trapped victim. She finishes the story and Seth Brett, who has been a devoted fan of electronic games from age 3, turns in a very matter of fact way to the possibly totally bored house guest.

"You do understand why I came early?" he asked the lady. She said something about, "you were ready to be born."

"Oh no," he answered. "I had been playing with my Gameboy for several months and the batteries had run out. So I had to be born so my Dad could change the batteries in my Gameboy." At age 10+ he still finds this version of his birth totally logical.

December 1995. After toying with the concept that a line run down the hill to The Bowls should be left alone as a one-off technical experiment, I connected our first real world paying cable TV subscriber to Far North Cable TV Ltd. From the month of Seth's birth onward, our yard had grown from 1 to 7 satellite dishes and each would bear a 'Taylor Howard like' encryption with Seth's name (and a date when the concrete was poured) to mark our entrance into what has been, perhaps, the worst financial decision of my life. Gay was innocent in all of this - a premature baby in hand, first-ever motherhood at 37, and a supreme belief that her husband, 'the father of home satellite TV' and a major contributor to the development of cable TV in North America, 'could do no wrong'. Time would prove that to be incorrect.

In North America, cable TV systems are built after negotiation with the local government (city, town, county) fathers for contractual permis-

sion to 'use the alley and byways' of the community to install the cable equipment. There was no such foundation in New Zealand but national firms providing telephone, power and other services (such as water, sewage) are routinely granted 'Network Operator Permits' which convey the same privileges as a cable franchise in Dubuque or Deerfield Beach. The 'Doubtless Bay' community is actually five immediately consecutive tiny-towns strung together along national highway SH10. Our Coopers Beach home is slightly off center from being in the middle of this long, thin strip of habitation and we would begin there and head east and west at the bottom of our hillside driveway.

In a region where cable TV is a known quantity (and quality), preselling involves going door to door to determine what interest there might be. With rooftop aerials, the five communities received TVOne and TV2 - the two national services. Cable's initial offering would be 15 channels; seemingly the advantage would be to us. Not quite.

There were three negatives, of varying importance to individuals approached. First, cable costs money and there was no history of paying for TV reception in the country save an annual TV set licensing fee that everyone paid in support of creating New Zealand content (programs dealing with gardening, sheep raising, local news and so on). 'Paying for TV reception?' was a foreign (read, 'American') concept. Which brings us to number two. "Where does the extra programming come from - America?" Our region was in 1995 largely populated by folks 65+ who had varying memories of World War Two and the impact of American soldiers stationed here. Overall, 'extra-American programming' was not a plus with most potential subscribers. And number three. Any programming that came from a country where English was not the primary language was even further down the desirability pole than 'from America'. A handful of local motels thought having a German channel, a French channel, an Italian channel was good for tourist business - tourists originated from those countries. The locals by in large thought otherwise. "I will not pay to have a bunch of channels in my home that do not speak English." Fair enough - eventually we would have enough channels available to allow us to break them into 'tiers' or 'levels"'and the non-English would be available as a part of a much larger channel universe. But not initially - even with seven satellite dishes, we were stressed to locate 15 total channels from anyplace, in *any* language!

My initial door to door surveys ended up forecasting 35% of homes passed by cable service would subscribe within 18-24 months. It would turn out to be 20%. Money. To build the underground (buried) cable

system looked like a NZ$300,000 project - the majority of which came from a house + property loan Gay and I negotiated from a local bank. Their mortgage on our property, valued at more than $300,000, seemed doable. Plus, based upon my nearly 40 years of cable experience, a 18 month interest-only payback to the bank while our subscriber numbers grew seemed like a suitable way to handle the payback to the bank.

There were two serious flaws in this plan. $300,000 turned out to be shockingly under the actual cost of completing the underground system - we were 60% done and out of funds which meant our initial universe of potential subscribers was below the original number by 40%. That was an ouch. And the 20% subscriber rate was only slightly better than half of the forecast 35%. A double ouch because we now were faced with the 18 month start of paying back principal (plus interest) and would not have the money to do this. A second mortgage loan, negotiated privately with an American ex-pat recently moved to the area, provided an additional $200,000 to complete the system. Fortunately, the subscriber rate in the last area wired jumped to 30% because regular rooftop aerial reception (of TVOne and TV2) was poorer here than in our original wired segment. But when it all washed out, now faced with two mortgage payments we were still short even for the interest payments. The problem would dog us for 10 long years, through multiple renegotiated bank and then private loans and increasingly more onerous interest terms. Even in 2005, fully 50% of every dollar taken in from subscribers went directly to paying interest on our loan(s) and we would still not have made even a tiny dent in the principal - standing at (NZ) $535,000 in 2005.

Over time two new factors emerged. While we were building Far North Cable TV, an American group funded by Time Warner had created a five-channel pay-TV service (Sky NZ) using standard UHF channels, following a model created by Canadian consultant Sruki Switzer in Quito, Ecuador. But it was not available in our area and never would be. And then as the number of satellites grew and more channels became available, by 2000 we would have 40+ channels on cable. Sky at this point elected to gradually phase out their five channel UHF pay-TV service, replacing it with a satellite direct service not unlike DirecTV or DISH TV in the USA. This would be a double edged sword - on one hand, we could (and would, after a negotiated agreement) include two of their satellite delivered channels on our cable system. The not-so good aspect was Sky did not really need us - with small (24") pizza-plate dishes on homes in our area, folks now had an alternative - buying their 'pay-TV' directly from Sky.

Thus began a concerted effort at Sky to put us out of business, possibly out of some misplaced fear that cable - any cable, even our tiny system - should not be allowed to endure because it represented a second choice for viewers. This 'get Cooper' attitude prevailed at Sky for a couple of troublesome years until they finally realised that left alone, my cable and I would eventually die anyhow without their intervention. In 1986, cable conspired to shut down satellite TV in America. My lonely experience as New Zealand's 'only' cable TV service would prove a reverse can also happen.

Publishing our way into the next millennium

Coop's Technology Digest would be published for 9 years, finally coming to a self-imposed close in 2002. It was an enjoyable publication, more like a high technology newsletter than a magazine, often running to 50+ pages of fine print per issue with in-depth analysis of leading edge developments months and years ahead of any other similar sources world-wide. 'Digest' was my model - it began as an electronic technology focused 'Reader's Digest' but gradually outgrew the compilation of other's materials into a uniquely New Zealand publication. But 30,000 words per month over time became a serious drag on my mental capacity plus available time and as it accepted no advertising, was totally dependent upon 'high priced newsletter' fees in the region of $125/$250 per subscription per year. When it was no longer 'fun to do', the decision to stop while I could still see the keyboard seemed like the right one.

SatFACTS Monthly, on the other hand, was just this side of a roaring success with both subscribers (60+ countries in 2005) and advertisers. It was modelled after Coop's Satellite Digest (CSD) of the 1980s and the primary difference was that it focused on the Pacific (+ Asia) region in a market that was less than 1/25th the size of the original CSD world. CSD had been a proactive beacon on behalf of the home satellite dish world and SatFACTS very deliberately followed similar footsteps. But it has never done much more, as a financial tool, than break even simply because the market size remains too minuscule to do better.

What it has done from issue one (eleven years - #137 in January 2006) is push the technology envelope of all aspects of satellite communications including a few areas which were not universally appreciated. Foremost in this category has been the grey world of piracy.

From the much maligned 1987 'Descrambling Summit' on Provo through the balance of the 80s, and 90s, 'piracy' of pay-TV services had grown into a major underworld subculture. Whereas Ed Grotsky was a meek and mild Casper Milquetoast who would not swat a fly, the folks who were follow in his pioneering footsteps routinely did such nasty things as grab piracy tool competitors off the streets of Germany and leave them hanging from a tree by a belt around their necks; dead. The limited Videocipher 'busting' in North America was but the preview of a widespread, international ring of increasingly organised 'pirates' centered first on Germany and then by the mid-90s the Eastern Bloc countries such as Bulgaria and Romania. An Irishman, John McCormac, of Waterford (the crystal and china capital of the UK) began to tear pay-TV asunder when in 1988 he introduced his first edition of '*European Scrambling Systems*' to an expanding marketplace. Over the next seven years, McCormac ground out 500 page 'manuals' annually, each updating the previous with new information as the pay-TV providers raced to stay ahead of the hackers. For those who could not wait for the 30 pound Sterling annual updates, a 50 pound Sterling subscription to his '*Hack Watch News*' monthly was also available.

McCormac's writings were exceptionally well done, his research into hacking methods and the details to bust the security of systems explicit, and there were many attempts to shut him down by means fair and foul. He would gradually reduce his visibility when the foul measures began to outnumber the fair and hackers were physically harmed and killed for their passionate devotion to busting conditional access systems.

By the early 1990s, the power of the home personal computer had reached a level where it was now possible to unravel a pay TV protection code from the comfort of your living room or den. But the real hackers no longer lived in individual isolation because 'Bulletin Board' web sites had turned into camp grounds where without revealing who you were, where you were, or what you were - pay-TV system busting information could be shared, expanded, and refined. If one monkey required ten years of pounding on a piano to create a melody someone might recognise, now we had ten, then 100, then 10,000 'monkeys' hacking away at popular encryption systems. The living room pirates may not have been terribly well skilled, individually, but there was an

army of them out there.

The most direct impact of the sheer number of 'piracy-inclined' individuals, almost all of whom were in Europe, was in the commercial arena. Increasingly, encryption routines were shifting from burying decoding instructions inside memory chips housed within the decoder to renewable and replaceable 'smartcards'. The pay-TV smartcard was a creation of a small Israeli based firm founded by an American entrepreneur who would eventually be found to be hiding from US authorities; Michael Clinger. His firm, News Datacom, would eventually be absorbed by means more foul than fair into a growing group of companies either owned or management controlled by Rupert Murdoch's News Corp family of firms. What Murdoch brought to the pay-TV world was a Guantanamo mind set; he was the kingpin, anyone and everyone who crossed him or his encryption methods was fair game for whatever his staff of enforcers might dish out. Clinger brought to the party a brilliant mind and a new technology originally created by an Indian born physicist living in California; BK Marya. The Indian had developed a way to embed into a piece of plastic a small electronic memory 'chip' that could be given specific instructions either by hand, machine, or remote control. BK's development was the key to creating smartcard technology and Clinger with some help turned it into today's familiar pay-TV authorisation device.

Clinger was a bit of a cad, did not especially care for Murdoch or his highly paid overseers, and like the guys and gals at M-A Com who wrote the original code for Videocipher, he held back certain detailed information. He had his own 'private' back door into the system he handed to Murdoch as 'complete'.

Australian biotechnology investigator Neil Chenoweth, in "*Rupert Murdoch: Reality Wars on the Information Highway*," found plenty of reasons to describe the first Murdoch offered BSkyB (UK) pay-TV system smartcards as 'incomplete'. John McCormac in Ireland immediately turned his own army of hacker enthusiasts loose to reverse engineer Clinger's work and in just a matter of months an estimated 100,000 homes were watching BSkyB, without paying. This was the point where hacking turned ugly - Murdoch hired enforcers who prowled the Internet searching for indications of piracy information exchanges, and when individuals were identified, midnight knocks on the door resulted.

The mid 90's laws making it illegal to hack were mostly ineffective, a side effect of the ongoing steps underway to create the EU out of a dozen formerly independent states. Hackers could set-up shop in say

Germany, crank out piracy smartcards intended for use in the UK, and laugh all of the way to the Deutsche Bank. When German pay-TV firms began to use cards of their own, the hackers set up shop in Eastern European countries and once again piracy smartcards flooded the pay-TV operator's host country. It was a round robin generating plenty of cash with cards changing hands for upwards of 100 Euros each, against a raw card cost of just a few Euros. Individual back room shops in Bulgaria were turning out as many as 10,000 cards a week - a million Euros worth - and you can quickly work out what type of entrepreneur this attracted. The 'smartcard Mafia' had arrived and unlike the semi-innocent geeks sitting in their living rooms turning out a few dozen cards for friends, this bunch took very unkindly to competition from 'amateurs'. Some of the latter were killed, most quickly dropped out of play after someone threw a firebomb against their front door. Hacking was one thing - living in fear for one's life or the safety of a family was quite another. What this left operating by 1995 was a small cadre of super-skilled hackers who lived behind multiple-pseudonyms, an army of folks who hacked for the challenge with private use as their goal, and the gangsters.

My SatFACTS publication began operation in 1994, just as this torrent of piracy was shifting from personal to highly controlled. At that time, Europe and America had piracy problems - with the USA piracy enthusiasts primarily Canadians who were supplying both the USA and Canadian markets, still under the Canadian court ruling that it was not illegal to live in Canada and hack American TV satellite signals because they had no legal standing in Canada anyhow. Satellite TV had just begun in the Pacific and Asia, the last world segment to take this technology step. Piracy was not a regional problem - yet - and I devoted very little space in SatFACTS to the subject for the first two years of the publication.

But that would change. New Zealand's struggling pay-TV system was utilising a Murdoch created encryption system with smartcards, and a new first-ever satellite delivered pay-TV system for Australia was being born. New Zealand laws, new in 1994, very carefully defined piracy and anyone caught with the tools of the trade was going to find turning it into a business a tough go. Australia, to the contrary, had not updated its laws and it would turn into a piracy market of significant size by the spin of the century.

Enter a South African named Rolf Deubel who traded on Internet as MadMax (a name he adopted from a decades-ago German motorcycle racer who defied tradition and common sense in riding roughshod

over the competition). MadMax was in 1998 a skilled student of all encryption technologies. He was a retired BMW auto racing team technology expert who made contributions to his employer by reverse engineering complex fuel injection software language which competitive car makers were using to make their racetrack vehicles beat BMW at rallies world-wide. He had moved from his home country, Germany, primarily to take advantage of tax and other perceived perks of living in the Republic of South Africa. He was well paid at BMW, lived an exciting life of world travel and high level intrigue as he and comrades stole into competitor car sheds during the dead of night at race courses all over the globe to 'borrow' computer chips out of the competitive racing cars just long enough for him to dump the software into his laptop computer, for later safe haven analysis. Piracy, obviously, was not limited to the world of pay-TV.

When his BMW contract came to a natural end, Rolf + wife Connie + daughter Jeanine found themselves living in a country where his level of special skills were unknown and unwanted. He turned to something he understood - reverse engineering of smartcards. He was already a skilled user of Internet, and within months found his way into the innermost circles of those rugged individuals who had survived the take-over of pay-TV smartcard marketing by the Mafia element.

The Mafia's approach to smartcards was 'money talks - bullshit walks'. They believed every individual who was not a part of their network could be 'bought' - it was not a matter of, 'will they work for us?' but rather, "how much do you want?" At $1,000,000 per week in card sales for the right combination of bits and bytes, the Mafia was ready, willing and able to pay virtually any amount of money for the 'right information'. Rolf knew and understood this, but he also understood that some of the super-hackers were also super-pure; beyond approach, not ready or willing or able to 'sell out' their secrets to the commercial (read: Mafia) guys. Rolf was the perfect intermediary. It was this small (perhaps 20 folks world-wide) group of super-hackers from which most of the real secrets flowed. One of the super-hackers, of which Rolf eventually became a member, was worth 10,000 'amateurs' sitting at home pounding on their keyboards. What he brought to the party were two things:

First, he was capable of being a 'super-hacker' in his own right. But that would take time, and opportunity.

Secondly, he - unlike all of the other 19 or so super-hackers - had an ego. After spending a decade 'stealing' car racing fuel-mix formulas from BMW competitors, he was itching to be noticed, even made noto-

rious. I would help out there. His super-hacker compatriots wanted to remain so far removed from public view that when they met (as they did twice each year in remote Austrian Alp enclaves) they all travelled under false passports and used fictitious names when signing in for lodging.

At least one of these 'supers' was a double agent - reporting back what he wished to share to a Rupert Murdoch funded agency that had been established to infiltrate the hackers. Another was acting as an intermediary between the original work which the super-hackers largely shared, privately within their group, and the Mafia - that would be Rolf for a period of time. The 'supers' were, and probably today remain, an 'eclectic' group of individuals; students at German technology schools, French employees of pay-TV provider Canal Plus, Italian closet hackers; a dynamic group of individuals who, together, had more combined 'hacking brain power' than Rupert Murdoch employed at his NDS smartcard laboratory in Israel - much to Murdoch's regret.

Australia was a 'natural market' for MadMax. The Irdeto (brand name) encryption system selected for use there was, by any measure, out of date before it began. It fairly invited Rolf's skills. His ego was at work when he landed in Melbourne and went directly to a local shop where, using Australian technology, the crew had (they believed) broken the in-use encryption system. In 30 minutes time, show 'n tell, Rolf blew their minds. He took a pre-existing, defunct, Galaxy pay-TV card, ran it through his laptop and within seconds it was back into a Galaxy/Foxtel pay-TV service receiver where for the first time the previously dead card not only allowed access to the original channels but a host of new channels which the card was never intended to access. Rolf called his work 'MOSC' or 'Modified Original Smart Card' and it would become the foundation for five years of hell for the Australian pay-TV industry.

Rolf's skills were well publicised, first on our SatFACTS web site, then in print. Rolf had so much personal ego that he poured multiple-page e-mails to me, personally, to correct and expand upon my reports. Of course SatFACTS readers in the UK, at Murdoch's policing group headquarters, found his claims of busting the Australian pay-TV encryption routine a direct challenge. They responded by sending an investigator to Australia, and New Zealand, ostensibly to gather information as to how widespread Rolf's technology had become. At the same time, being clever folks, they began to set a snare or trap to grab Rolf. He was more than a pirate - he was a loud, boastful pirate who was basically saying to the world, 'Catch me if you can!'.

Murdoch's minions, to catch pirates, had in 1998 funded a piracy site - a web posting place where pirate enthusiasts were invited to post the latest hacks and other grey market information. It was run by a Brit, Lee Gibling, a fellow who had, prior to his association with Murdoch's anti-piracy folks, been a minor league participant in piracy. By putting up the money, Gibling's Internet site (www.thoic.com), paid for by Murdoch's NDS, was a direct attempt to gain information on piracy enthusiasts world-wide; those who 'checked in' were immediately sent on to Murdoch's anti-piracy headquarters under chief enforcer Ray Adams. And it had a second purpose. Somebody in the Murdoch camp had worked out a scenario as follows.

If a piracy web site (Gibling's site) could be used to spread hacking information that would assist pirates in busting non-Murdoch encryption systems, the site could perform a secondary valuable function as well. It went this way. French based Canal + had their own encryption system, which had been adopted by several other pay-TV systems including the Italians. If, through Gibling's site, information could be released which assisted pirates in busting competitive encryption systems, it would be to the ultimate benefit of Murdoch. If competitive systems were busted in a big way, the programmers (such as the Italians) would go out of business - or, as happened, their entire pay-TV business would be available for a pittance - a fraction of the true value. Think of this as a human virus. First you release germs that spread a disease, and when the future seems most bleak for the affected firm, the germ spreader moves in with a cure known only to him.

If this seems a tad on the wrong side of commercial law to you, it did to me as well. But there was at best circumstantial evidence that Murdoch was in fact using his Israeli based NDS Datacom to reverse engineer the competitor's encryption systems, then to take that information to Gibling's (and other) web sites where it was 'shared' with the hacking world. A British pay-TV system, the Italian and French systems, and even America's DirecTV pay-TV system, seemed to be directly violated by hacking information which some traced to Israel - NDS Datacom. Two of Murdoch's encryption system competitors would 'die' (go out of business) before this was over, and Murdoch would end up owning the Italian and American (DirectTV) businesses, each of which his NDS purchased at a bargain basement price because (amongst other problems) piracy was rampant when Murdoch stepped in to 'save their bacon'.

Murdoch of course claimed it was all a coincidence and an American government investigative team (during the George W. Bush

administration) would agree after numerous lawsuits were filed protesting the manner in which Murdoch's NDS encryption system seemed to be the end of game winner.

In September 1999 Rolf Deubel, feeling he could not be stopped and ego driven to continue his rampage against Irdeto and other encryption systems, made a trip to Thailand. The Thailand pay-TV system, UBC, was, like Australia's system, vulnerable to Rolf's style of hacking. Before his trip Gibling had been told by Rolf, "I am going to Bangkok to crack their system." A stupid, foolish boast as Gibling was a direct conduit to Murdoch's NDS.

Gibling passed the private information on to Murdoch's head of security, Ray Adams, and Rolf had been on the ground in Bangkok less than 24 hours when an entourage of Brits and a South African arrived from London. They were met by upper echelon Thai police officials, and convoyed to the private home where Rolf, working with a Thai agent, had succeeded in 'busting' the Thai pay-TV system, essentially catching Rolf in the act. What happened next was the stuff that makes a good novel.

Human rights, in Thailand, are subject first to interpretation by the police officials making an arrest, and later if they feel so inclined, by the judge where the arrested individual is arraigned. If nobody involved cares to follow whatever the law may or may not say within Thailand, there are no safeguards in place to protect the arrested. What Rolf went through was a prime example of why it is neither advisable nor desirable to run afoul of the authorities in Thailand.

'Law enforcement' in Thailand is 'for sale'. Detailed records retained by Rolf verify this again and again. He was told that sums in the area of US$50,000 had been paid, by the British representatives of Murdoch's NDS, to arrest and place him in jail. And to keep him from being released. The money was split between the arresting officers, their superintendents who would ultimately initial (and approve) the arrest reports, with a majority going to a judge who would finally hear Rolf's pleadings. Murdoch's people, who flew in from London on short notice to be present while he was interrogated, threatened Rolf, "You made a big mess of the Australian pay-TV scene and Rupert wants your ass." What they really wanted was Rolf Deubel out of circulation, locked up in a labyrinth of Thailand laws and prisons unable to negotiate his way out of detention.

The Thais, no surprise here, were open to 'best offer' in all such cases. If the NDS Brits paid US$50,000 to have Rolf arrested and placed in a prison designed for sub-humans, those responsible for his deten-

tion were 'open' to a counter offer. 'Tell us how much it is worth to you, to be free', several officials said to Rolf. The answer had to be in excess of US$50,000, only because they had that much money 'in the bank' from Murdoch.

Rolf's detention was a 'rolling case' while he negotiated, sought to get messages out of the prison back to his wife in South Africa, and she in turn worked to raise funds from relatives and friends. Every aspect of his life at the high security prison was money-related; where he slept, what he was given to eat, whether he had clothing, a modicum of personal time, his health care and whether he was allowed to walk around the prison yard, involved money, of which he had none - removed for 'safe keeping' when detained. Those who had none were crammed 20+ into a 5 person cell where the brutal and the bullish ruled. At the opposite end of the pecking order, some detainees in 'private cells' even had satellite TV using cards that were suspiciously like those Rolf had perfected for the Thai TV system.

In February 2002 Rolf arrived at Auckland airport, after being detained in Bangkok for 145 days, to spend a month with Gay and I to 'dump' his story on more than 70 hours of audio tape. About halfway through, I decided while we would complete the 'interview', I was not the correct person to write this book. Which is what Rolf wanted - a book turning him from an exploiter into one who was exploited. The 'story' was embracing - involving individuals right up to the son of the King (a Prince) involved in a gay bashing disagreement resulting in death and a cover-up by official Thailand. In fact it was far too frightening for my home, my computer, my writing skills.

Detained in the same prison as Rolf was a military upper echelon individual of rank who would befriend Rolf, for a purpose. Once they understood his skills, this 'Thailand Mafia' individual would arrange for Rolf to be 'out on the street' but not free - simply available to do 'something special' for his benefactor. Something special? Well, Thailand was in the process of introducing cash cards - smartcards which individuals acquired at the local bank, pre loaded at the bank with funds, which they in turn could 'spend' at local businesses. This particular individual believed Rolf had the skills to 'manipulate' the cards so that when the card ran out of money - all was spent - Rolf could reload the plastic with 'new money' which could then be spent without any bank authorisation. It was the ultimate hack - free money.

Seventy hours of audio tapes, more than a notebook filled with my own additions. I had agreed to Rolf's 'hosted' visit to tell the story of how the inner workings of the 'Super-hackers' functioned but what I

was facing was a major novel based upon the life style of a guy who was, at best, a totally modern criminal. I bowed out - ultimately but not for several months - agreeing to send the package of tapes back to Rolf and to introduce him to a 'suitable writer' who was less concerned (I believed) about personal safety than I. It was one thing to cross Rupert Murdoch, quite another to bring the tent down on the Thai King and his family. It was not my cup of tea.

From Ed Grotsky to Rolf Deubel, in less than twenty years, the criss-crossing of pay-TV piracy had evolved into a world which I no longer recognised; or perhaps, wanted to recognise. Grotsky's rather innocent X-ACT had an element of charm about it; US Senators, court judges, movie stars 'cheating the system' but who, in the end, would ultimately be paying for HBO like the rest of us. But Deubel's world was one of volume, the Eastern European Mafia, and the King of Thailand's son and a prison system in a third world country where you were beaten to a pulp if you refused to engage in homosexual acts with a guy from Zimbabwe who had been arrested by the Thai police because he refused to turn over several hundred thousand dollars in questionable US dollars to the arresting coppers for their personal pleasure.

SatFACTS had covered the 'MadMax detained in Bangkok' story from day five or so of his detention - his wife Connie had called me in the dead of local night to alert that her husband was under Thai police control and even through diplomatic channels no additional information had been forthcoming. Murdoch's guys had been in control of the detention from day one, and even the German Embassy in Thailand had been reluctant to help their passport carrying citizen. Because SatFACTS had subscribers in the country, I had at least an opportunity to go to these folks to see if any of them could use local sources to pin down why he was being held, where, and the status of his arrest. Here I was lucky, locating a reader who was himself an ex-pat living in and doing business there who just happened, from a former British life, to be a trained solicitor.

Because his detention had been engineered by Murdoch's folks, in a country where arrest records are often 'misplaced' and tracing is difficult even for its citizens, this one would turn into a board game of blind alleys and official silence; the ultimate crossword puzzle. 'Our (SatFACTS) Man in Bangkok' also happened to be fluent in German (talk about good fortune!) and he eventually wore down a very defensive set of embassy officials who first lied through their teeth about any knowledge of Rolf's detention and then when they knew we were

getting close to the core of the cover-up did what they could to distance themselves from the expected fallout. In fact, an attaché from the Germany embassy had been present the night Rolf was brought in for formal detention and witnessed his initial interrogation.

Rolf lived through his thin-line laptop PC. Inside, not unlike Ed Grotsky's record system in 1986, were thousands of names, addresses, e-mails sent and received and of greatest interest to the folks from London, complete software programs designed to unravel encryption schemes. As he tells of the initial door-busting arrest scenario, guns drawn and shouting instructions in several languages he had been told to "back away from your computer - don't touch it!!!" Obviously they had expected him to have a self-destruct program built-in and were forewarned not to allow even a single key stroke after they were through the door. The police South African hurried to Bangkok with Murdoch's police force was a sharp PC guy and his duty would be to carefully dump the PC's contents for detailed study in the comfort of a London lab.

Word that Rolf had been arrested spread rapidly, but in two cases in Europe not fast enough. Using information uncovered in the PC, Belgium and Dutch police appeared without announcement to bust down doors behind which individuals much like Rolf were participating in the smartcard game. Irdeto, the Dutch based firm that owned the conditional access encryption routine in use in both Australia and Thailand, immediately began issuing press releases designed to scare the crap out of others. Referring to, 'information located in Rolf Deubel's detained computer', a wave of fear over washed the piracy community including the individuals who, like Rolf, belonged to the 'Super-Hacker' club.

Rolf's detention was designed to demoralise the man, as quickly as possible. He was placed into a cell where every ounce of dignity and humanity would be drained, occupied prior to his arrival by a variety of foreign and Thai detainees. The Murdoch and Irdeto folks from Europe would hang around a few days enjoying the food and beverage at upmarket tourist restaurants while they waited for their man to 'break'. An inmate trustee slotted into the same cell with Rolf would later be identified to speed the demise of Rolf along while simultaneously befriending the German hacker in hopes that he might become a confidant and pass on information the Murdoch folks would find useful.

But there was one element at play which neither the police nor the London visitors could have foreseen in advance; prison 'telegraph'. Word that the robust German man, singled out for what detainees

immediately recognised as 'special' treatment, was in fact some sort of brilliant 'hacker' of plastic authorisation cards became the internal headline of the day. And it happened that at the opposite end of the detainee family tree there was a high ranking military official who was allowed to maintain not only his own internal 'army' and enjoy satellite TV in his private cell, but also given access to every possible record as might exist on fellow prisoners. In a single sentence, this particular military officer had elected, 'as a service to his King', to be tagged as a suspect in a murder which in fact involved someone very close to the Monarch family. That he was actually responsible for the murder remained unresolved. But in exchange for his 'service' ("take me - I might be guilty"), while he lost his freedom to move around outside the prison, he had lost none of his influence inside the military establishment. And in Thailand, the military survives by being the conduit for drugs, illegal arm shipments, and the more casual crimes such as prostitution. The police survive by grabbing items of value from folks passing through the country, as Rolf would learn. There were occasional 'jurisdictional disputes - was someone who checked into a Bangkok hotel placing a million dollars in uncut diamonds into the hotel's safe for 'security' a police target or a military object? Rolf spent time in a cell with just such a person who learned the hard way that when the sweet smiling lady behind the hotel counter offered, 'Do you have any valuables with you that we can place in our vault for safe keeping?' it was a certainty that as he filled out a form piece of paper describing his cache that within minutes of leaving the vault a copy of the paper would be in the hands of a police supervisor. "Value: $1,000,000" was, in this instance, a jurisdictional matter, a tug of war between the police (who would shortly arrest the man and 'confiscate' his vault 'protected' diamonds) and the military (who would remind the police that items with a value in excess of some magic number of Thai Bahts was automatically theirs).

The military detainee within days had Rolf into his private quarters for an interview. Rolf's first suspicion was the smartly dressed, English speaking articulate commander sitting in a leather chair in a fully decorated cell was simply another Murdoch/Irdeto 'ploy'. The military man understood this, and made an effort to convince Rolf he had a better plan - 'to get you out of here'. To show his 'concern' for Rolf, the military type immediately arranged for the German to be transferred to a more comfortable cell environment, to get access to the funds he carried on his person (but appropriated when arrested) which would allow the purchase of outside-prepared meals, clean clothing,

and personal items such as a toothbrush.

In a series of meetings, designed to tear down the defenses Rolf was showing against what amounted to a clever interrogation routine, the object of it all became clear. Rolf knew how to change the content of plastic authorisation cards and brand new in the Thailand economy, one form of these cards had tremendous black market potential.

Rolf's days on the 'inside' would now be modified through an arrangement with 'The Captain'. And the story of his additional months in Thailand would deviate further and further from the original television smartcard reason he had flown there. What he did, and how he would eventually escape will have to await his own book written with the assistance of another author. Suffice to say that in the end, while Murdoch/Irdeto did tap into his laptop and from that locate a number of individuals that had previously eluded them, very little really changed in the piracy world.

In fact, now alerted to the complicity of Lee Gibling and his NDS sponsored web site, the combined hacking skills of Rolf and his comrades created a breech of Gibling's computer security. Tens of thousands of files, e-mails and his web site support material flowed out and into Rolf's hands as he would demonstrate to me by leaving behind a disc loaded with some of the more tantalising and private exchanges between Gibling and associates at NDS. If there had been even a lingering doubt about how far Murdoch's people had integrated themselves into the grey world of hacking, the Gibling files put an end to that.

My posture in SatFACTS was straight forward - bad things happened to pirates and the pain MadMax suffered while in the hands of tortuous Thai authorities would, I hoped, send a strong message to those who, at least in Australia, were racing at breakneck speed into a world of illicit trading in MOSC. Australia's entry into pay-TV had come only after elaborate negotiations behind closed and locked doors allowed Mr Murdoch, his enemy-for-life Kerry Packer (the Packers control a major Australia television network; Nine), and the government owned and operated telephone company Telstra to slowly, methodically, step by step assume control of the pay-tv industry. An early satellite entrant, calling itself Galaxy, had gone bust and Murdoch's NDS picked up the pieces and approximately 50,000 early subscribers. On the cable side, for two years there was heated competition between privately owned Optus Communications which was a telephone competitor to government owned Telstra, and Telstra, to wire up the major city centers. In the end, both sides realised that running cables down the same street

and then trying to compete based upon service offerings was a horrible waste of corporate borrowings. American cable firms drifted into and out of this scenario, proving only that hundreds of millions of profit dollars earned in Oskosh or Ontario, dumped into a highly speculative Australian minefield, was a quick path to financial ruin. Australia was not, would never be, 'the 51st state' and American cable bosses were poorly advised to even set foot onto the 6th continent, much less invest money there.

Simultaneously, two satellite delivered pay-TV firms raced towards their own kind of financial hell by overlooking that a new home dish system installed on a home cost them $500, for which they typically received less than $100. It was the oldest marketing lie in the world - "What we lose in near term we will eventually make up with volume." Not quite - for every new home connected to satellite, the operator had to go someplace and borrow or beg or steal $400 to make up the difference between what the consumer paid for the equipment to be in/on his home, and what it really cost to be there. Their theory was, there was profit in the monthly charges and once connected up to satellite, if a home stayed as a customer long enough, the profit made month by month would somehow eat into the $400 borrowed or stolen to subsidise the original cost of making the home a customer.

"And eventually, after the $400 is paid off, we will begin to show an operating profit." Or so those with sleight of hand and super fast calculators preached to unwary investors.

Eventually, growth in Australian pay-TV ground to a plateau - 22, perhaps 23% of all homes did subscribe. But of those, 18% or almost 1 in 5 gave it up after a year (or less) of paying for TV. Australia, for whatever combination of reasons peculiar to their society, was not reacting to pay-TV as if it was, in fact, "a 51st state of America." And then there was piracy.

Foxtel's cable offering begged to be stolen - especially in MDU (multiple dwelling units). A day spent in Fayetteville (Arkansas - home of the University of Arkansas) or Ithaca (New York - home of Cornell) would have made them defensively smart before stringing cable into 6-and 8- and 24-flat developments. All it took was some wire purchased at a local Dick Smith (a Radio Shack kind of store in Australia), and connectors, and the cable that went into the MDU could be, would be, 'tapped into' by those who lived there but who had feinted no interest in pay-TV. If one unit in the MDU hooked up, after a visit to Dick Smith, any of the remainder could also be attached without Foxtel knowledge. And not one single smartcard was involved in this

subterfuge.

Foxtel's satellite offering would prove no more secure. When they took over the ashes of Galaxy, Foxtel was unable to account for approximately 40,000 satellite decoders which had basically disappeared largely through shoddy bookkeeping and a failure of Galaxy management to make an effort to retrieve decoders from homes that simply discontinued the service. Under 'normal' circumstances, the loss of $200 book-value decoders, even 40,000 total, would have been a $10 million error - manageable. Unfortunately, these were not 'normal' times because each decoder running around loose (and frequently on offer at weekend boot-trunk sales in supermarket parking lots) was, with the assistance of one Rolf Deubel, a potential non-paying viewing home, using MOSC.

The decoders without a smartcard were useless. But with a MOSC, the decoder not only provided access to some of the ex-Galaxy (Foxtel) channels, they allowed the user to view *all* of the channels. Smartcard piracy in Australia became a national issue, frequently visited by inquiring newspaper reporters, magazine editors, and the television networks. Moreover, as the sophistication of the card designers grew, built upon Rolf's original revelations, it soon became practical for individuals to sign up for Foxtel service at the lowest monthly rate and then using a card secured for $100 or more at a local pub, go home, insert the new 'gold card' and immediately begin to enjoy a much wider range of channels while paying for only the minimum number (strangely reminiscent of 'Three Musketeers' in America during the 80s).

Alone, Australian pay-TV might have survived these problems. But other issues interceded, largely management induced. When pay-TV growth stalled at under 1 home in 4, a blood letting began between the programmers and the cable + satellite firms. The cable and satellite operators believed they needed more channels to entice more customers, and to get there required that fees they were paying to the original program sources had to be reduced; big time. The two largest costs were for movies and sporting events. Negotiating reduced fees with the Hollywood based movie firms was long and arduous - even if Rupert Murdoch owned Fox Studios and they were a major supplier of movies. Rupert had worked out a decade prior that he did not need to make money with the ownership or control of a cable system or satellite provider - he only needed to control the programming, payment for which came off the top, before other bills were paid and long before the cable or satellite programmer might actually make a

'profit' from the business. In fact, as Neil Chenoweth so eloquently details in his recounting of Rupert Murdoch, profits for the cable or satellite programmer were actually undesirable as long as the provider of programming (if Murdoch) was making money. The public had money invested in the satellite or cable firms; Murdoch alone owned the programming sources. Which meant, he did not have to 'share (programme source) profits with anyone and could raise charges for sports or movies as the business grew, quite beyond the attention of his fellow investors in the cable or satellite firm.

It was a shell game at the very highest levels involving heads of state such as Tony Blair, George W. Bush and Australia's Prime Minister.

The final game

In midwinter (July, 2003 in the southern hemisphere) an old friend of extraordinary skills re-established contact; Kenny Schaffer, who lives in New York (the city, not the state), original creator of internal-to-Russia TV for American Universities in the early 80s, and from that had grown a business firm which pioneered exporting of American technology to Russia just as Ronald Reagan's détente was taking hold and Dr Carol Sue Rosin was becoming a semi-houshold name. Kenny, also the man who invented the wireless guitar for stage musicians in the 70s, had a new discovery, an elegant system that allowed you (or I) to transport from any location on earth (example: Moscow) to any other location on earth the full compliment of local cable, satellite or rooftop aerial TV channels.

"Try it," he invited, passing a set of Internet access numbers which indeed allowed me sitting in rural northern New Zealand to select from any of 66 Moscow TV channels, or any of 300+ New York (City) Time Warner channels, just for my personal examination. Kenny needed a name for the new service; I suggested 'TV2Me', and it stuck.

Anyone with half a modicum of common sense and technical ability knew that sooner or later this would happen; your at-home Internet connection would allow you to access any TV channel, from anyplace on earth, through your PC (or TV set with the addition of a simple accessory cable). A handful of others had tried the same gamut, but their pictures were flicker-laden slide shows where, sitting at a distant point, you received a new image every few seconds rather than 25 or 30 times each second (the number required for full motion TV). Kenny had done what even Microsoft, Sony and a number of other

name brands had not yet perfected - flawless, high quality TV through 'the web'.

I was, of course, stunned. From a 12 year old building huge rhombic (wire) antennas to improve 100 mile distant one-channel television as a kid living in upstate New York, here I was still alive and witnessing access to any TV channel from any location at my home in the sticks of rural New Zealand. I told Kenny, "I want in - let me help make this work, turning it into a household word." Kenny agreed, perhaps because he felt some level of loyalty to "the father of satellite TV" and my contributions to his own lifestyle over the decades. Let me be clear up front - Kenny and a handful of Turkish and Eastern European émigrés in New York had perfected the system; my contribution, if any, would be to get it out of the embryonic stage to the level of "Walkman."

Throughout July, August and September (2003) the system steadily improved as Kenny's unique skills perfected the algorithms that took a standard TV signal and reduced it to a series of 0s and 1s that could be transmitted through the world wide web. One of the special abilities of TV2Me was that if you left home, any home anyplace on the globe, and travelled, you could in fact take with you your normal channel changer remote control and a laptop PC. Then, residing temporarily as the case might be in a Hilton or Holiday Inn or Mariott in Chicago, Los Angeles, or Bangkok, by connecting your laptop to the in-room telephone/web connection, the remote control would function just as it did at home. Kenny described it to non-believers as, "Your bedroom TV set - wherever your bedroom happens to be tonight." The video recorder had made "time shifting" a household word; we hoped to do a fraction as well with "space shifting."

We knew Microsoft through their Windows Media 9 software, and Sony, had similar projects underway. And from press releases and trade show demonstrations, what we read and Kenny saw functioning quickly convinced us both TV2Me was someplace between 6 and 18 months out in front of at least these two heavyweights. I coerced Kenny to pursue patent applications, pushed until he filed for a number of trademark names (such as TV2Me, Space Shift) and together we tried to plot the best way to bring this innovation to market. It was my belief that we should go for one sale, a licensing arrangement, with a corporation large enough to slug its way into the consumer marketplace and deal with both the technical and anticipated legal challenges ahead. Kenny knew Rupert Murdoch, socially, but my instincts were to avoid him if at all possible. He also had spent 25 years in and around the New York entertainment scene and had close if not recent connections to

a variety of entertainers, such as the musician Sting, and the ability to land TV2Me on the front page of the Wall Street Journal if we needed that level of launch pad.

This was one of those 'too good to be true' innovations which had the unique ability to allow users to totally disconnect from their at-home TV sets and take the channels and shows they most watched with them, via Internet, global-wide. Yes, even to new Third Generation cell phones. Watching television had developed as a fixed-abode medium that made it possible for audience research firms such as AC Nielsen to wire up your home and determine what you watched, when, and for how long. TV2Me would be the end, amongst other things, of AC Nielsen at-home surveys.

Searching my past history for just the 'right' individual to present this to, Kenny's offhanded suggestion of Rupert Murdoch made me focus on others of similar business success who might be more 'enjoyable' to negotiate with than the Australian born media king. Back in the first days of home satellite television, when I *was* the 'icon of an industry', I came to know a young man from Tennessee who, ultimately would turn out to be 'the big winner'. This would be Charlie Ergen, the bossman and creative genius behind America's number two rated satellite to home small dish service, DISH TV. First of all, Charlie was a reader of both Coop's Technology Digest and SatFACTS. On infrequent occasions we exchanged e-mail messages, and one was sitting unanswered in my in-basket while Kenny and I were making up lists of potential show 'n tell candidates.

Ergen, according to Neil Cheoweth's detailed business expose on Rupert Murdoch, was the one man in the world who had gotten the best of Rupert - big time. More than once.

Ergen is a true American success story. He had turned himself from a skinny kid with a passion for playing high stakes poker into one of America's wealthiest individuals on the strength of a decade of daring risk-it-all moves against much bigger fish, such as Murdoch and even the heavy duty moguls of the cable TV industry like John Malone. But he had recently lost a big one (DirecTV) to Rupert and I believed he might like a business opportunity to one-up Murdoch. TV2Me, as Kenny and I worked out detailed business scenarios in lengthy e-mail exchanges, could be a 'perfect fit' for Charlie's DISH TV. In effect, by using its technical capabilities in each of several distinct ways, North-American-limited DISH TV could become an international player - not unlike Murdoch's globe circling holdings. The big kicker, we believed, was that if Charlie had exclusive rights to TV2Me, his subscribers could

'take their DISH TV with them' wherever and whenever they travelled. Of course there were potential problems; copyright was an unknown biggy.

In 2002, Ergen had made a corporate run at purchasing General Motor's DirecTV subsidiary. That attracted Murdoch who also wanted DirecTV himself as a missing puzzle piece in his global satellite holdings. In round-one, Charlie won, much to Murdoch's annoyance, and the tentative purchase which would combine DISH and DirecTV went before a complex set of US Government agencies each of whom was being asked to approve this amalgamation. The primary concern of the US Government was the potential elimination of competition in the satellite TV field. The two satellite companies combined had grown to nearly 20,000,000 American homes and were gaining ground on the 'cable monopoly' every month. Between DISH and DirecTV there was stiff marketplace competition, which held prices down and kept the cable moguls off balance day to day. Ostensibly, America is the birthplace of market competition and any merger that threatens a competitive consumer world is looked upon with disfavor. Murdoch would play this card at the highest Washington circles hoping to defeat the planned take-over of DirecTV by Ergen's group.

In Australia, Murdoch is called a number of uncomplimentary nicknames and one of the most cruel and damning is 'Dirty Digger'. A 'digger' is actually a World War One accolade in Australian slang, describing the brave, heroic volunteers who fought (and largely died) in Turkey. A 'dirty' digger is someone who turns on his 'mates' and runs with his tail tucked between his legs to avoid confrontation. In Murdoch's case, it meant that Australians using this slang to describe him believed he was underhanded with a habit of playing 'outside the trenches' to save his own skin.

In searching for a killer application to guarantee DISH TV would not gain government approval to purchase DirecTV, Murdoch's minions and the man himself made an appeal to the right-wing Christian camp of America. They began by meeting with leading religious preachers, largely Baptist and primarily those with significant followings through television. Remember - it was the 'right wing' political spectrum that put George W. Bush into the Presidency.

Murdoch's messengers explained that Ergen's 'Christian leanings' were suspect; did he not allow adult theme channels on his (DISH) service - the same channels which preachers railed against in Sunday sermons? Was it not possible - even likely - that if DirecTV was absorbed by DISH that America would be offered even additional 'adult theme

channels?' Give a Baptist preacher with a 1,000,000 home TV audience a new theme and you become his friend. Even if you are 'the dirty digger'. Then to cement the liaison, Murdoch met personally and privately with a handful of the most influential TV evangelists - folks like Pat Robertson - and left them with the distinct impression that 'if DISH TV is turned down, and subsequently News Corp is able to acquire DirecTV, there will be low-cost or no-charge 'space' on DirecTV for their programs. Give a Baptist preacher with 1,000,000 homes a new audience with 10,000,000 homes and you have his prayers. And full support.

So while the six month grinding process was underway in Washington, as each of several federal agencies considered the proposed merger, tens-of-thousands of letters began to arrive from common folk who had been told that 'DISH TV is antichrist' and 'we must protest their taking over of DirecTV'. Yes, Charlie lost this one and DirecTV was back on the market. And double-yes, Murdoch would end up with it. The 'antichrist' lost, 'dirty digger' won.

9/11 and the aftermath. It was Ergen's further bad luck that George W. Bush had become President, that Islamic terrorists had attacked America, and further that Murdoch had launched a television news channel (Fox News). In the weeks and months that followed, up to and through the invasion of Iraq by order of President Bush, Fox News channel became the most prolific, even most watched, American source for war coverage news. "Fair and balanced news - we report, you decide" was a clever statement of neutralism for the service but in fact, it was a gung-ho effort totally in support of Bush (and Blair) from hour one. Fox News was a Bush/Blair 'cheering squad' and that did not go unnoticed in Bush's Washington.

Charlie Ergen never had a chance in this battle with Rupert. He was outmatched and outflanked and out cheered by a man who knew more about manipulating public opinion than perhaps any other individual on the planet. When Murdoch subsequently appeared before a US Senate committee, which convened in special session to determine whether Murdoch's purchase of DirecTV was 'in the best interest of America', one Senator began his 5 minute of timed remarks by stating, "My wife would exorcise me from our home if I did anything here today but congratulate you for Fox News. She has your service on in our home every waking moment she is there."

It was with this background that I sent an e-mail to Charlie Ergen asking if he would be interested in witnessing a demonstration of, as I phrased it, "the most exciting development in the delivery of televi-

sion since you and I worked together to bring home dish television to the country." His answer was, as I hoped, "How fast can you be here?" Kenny and I had three weeks to prepare ourselves, he in New York but heading to Moscow, me in New Zealand.

Ergen's DISH headquarters in suburban Denver was our demonstration point. Just ahead of the meeting, Kenny had perfected a method of allowing someone with a wireless format PC to tune in Moscow, New York or London television while within the umbrella coverage range of what is increasingly known as WiFi - wireless Internet. Minutes after we made contact in Denver's Stapleton Airport, there we sat with crowds swirling about us, on a granite floor, he with his portable PC between us, watching Moscow television. No wires, battery operated, a 15" liquid crystal screen and stereo sound from tHt television 8 time zones to our east. The world had changed a great deal since Charlie Ergen transported 12 foot monster satellite dishes around rural Colorado on a modified boat trailer to demonstrate 'satellite TV' to potential one-off clients. And I was counting on his keen sense of history to appreciate the dramatic nature of what he would be shown 36 hours hence.

I had asked for, and received agreement, that only Charlie and someone from his staff of his choosing would be a party to our discussions. There was only the vaguest of comprehension in Denver that what we were going to demonstrate had something to do with Internet. Charlie's office has sent me sheets of paper requesting detailed information in front and I declined to fill out any of these. They in turn had an elaborate NDA (non-disclosure agreement) prepared internally which, while designed to protect them from us carrying outside some DISH secret, also had the advantage that it did the same for us, in reverse. A staff of six or so appeared when we arrived to assist us in setting up the demonstration equipment and after a few false-starts when their plug-in web socket was not functioning properly, we were away. Using a stock DISH supplied PC, and Kenny's laptop, we had both Moscow and New York TV displayed not only on the PCs but also on 25" TV sets as well. Charlie had chosen Mike Dugan, the Chief Operating Officer of his empire, to join us.

My signature on the NDA prevents me from detailing how it went but a summary is certainly in order. First, TV2Me worked flawlessly. Like any professional in the television business, 60 seconds of staring at side by side screens from Moscow and New York was enough for Charlie and Mike to form their opinions, sitting as we were in a DISH TV 'monument' building in suburban Denver.

"This is the big one," muttered Mike, staring at the screens. Kenny and I glanced at one another smiling. That seemed positive. After travelling 7,500 miles, Charlie's PA had allowed us an hour with the man. It turned into nearly 3, broken by a lunch. Only one thing was missing as we broke up, took the perfunctory photographs, and disappeared into a darkening sky that would shortly be followed by a November Denver snowstorm. And that was either a statement of interest or a commitment to go further. Kenny and I 'read' the extended meeting length, and the multiple positive statements plus the "what if we ..." dialogues as, we had a sale. We were wrong. Interested? Yes. Ready to run with it? No. It would be months before we had even a glimmer of an explanation why, "This is the big one," was not, in fact, 'the big one' for DISH TV.

A year passed and so did Charlie Ergen although I heard from him sporadically, especially when he was in New Zealand for a weekend with one or more of his children. Kenny, meanwhile, was not deterred from using constantly advancing technology and computer chips to improve his TV2Me product. I would 'tune-in' on my PC once a week or so from New Zealand and a lively exchange continued on possible marketing concepts. What was missing was one 'big sale', the official sponsorship of one client with the balls, guts and bucks to turn Kenny's creation into a household word.

As I compose these words, TV2Me is the very best long distance television transmission system in the world using internet technology. The latest software versions by Kenny include stereo sound and S-VHS quality video with a modest 256 kbp/s 'broadband' connection. Alas, it remains beyond the financial reach of the typical 'consumer' ($4,500 region). In the interim, a number of 'cheap and dirty' variations have emerged; Slingbox is one of those, a Silicon Valley upstart promising far more than to date (early 2006) they have been able to deliver. Sony has a consumer-level system as well, which also - to date - has been unable to deliver more than 'fleeting distant point' reception. That web delivered internet TV service will become a major force in how 'we' (that is you, I and most everyone else in the 'developed nations') access our television seems like a certainty. There is one very interesting wrinkle to all of this developing technology; 3G mobile phone television service.

One of the 'TV2Me' versus Slingbox/Sony/third rate start-up firm tests, which Kenny Schaffer always wins in a walk, is 'show me this reception on a big screen' - such as a 42 inch Plasma format monster or even larger 50 and 60 inch projection screens. It is a fall back on my youth and the 7" Hallicrafters black and white set imported to Ithaca

by my father that the smaller the screen, the less objectionable picture degradation becomes. A 2.4" built-into-cell-phone screen is about as small as it can get and still provide useful information for the eye to translate the image into an impression. Riding on the back of the world explosion in broadband, high-speed internet service is the ancillary growth of transmitting 'data' to tiny, pocket-small cell phones. Between the fiber optic world wide network and your handheld cell phone sits the cell phone industry's sub and microwave band transmission systems. Originally designed just for voice, later improved to include text and the ability to transfer sizeable data files, the current push is to improve cell phone capability to include video images with companion sound. The technical/marketing phrase here is '3G' which means third generation cell phones (the first having been voice only, the second adding text and data links).

The issues are complex and the technology required daunting. At the end of this rainbow, telephone firms hope (and pray - a silent prayer never hurts) the world is walking around with a tiny handheld 'personal communicator' that not only allows the user to send (using a built in camera) and receive still (or video-moving) images, telephone messages, and data files - but also display on the miniature screen favorite TV shows; the tiny screen being the ultimate 'filter' between what the eye perceives and the brain turns into an image (small is good, not worse, in this scenario). The technology to make all of this happen is pushing hard on the heels of the cell phone firms who for the moment are one of two missing links. Their inability to connect cell phones to live, entertainment 'quality' video + sound is still being perfected. The second missing link is the Nokia-like firms who will produce with a host of never-before-possible features these miniature 'hide it on your body' devices will make possible. Alas, it is a time element not a technology challenge to make this happen and one needs no crystal ball or future-seeing skills to forecast all of this will be terribly common place by 2010 (and in some fortunate regions, years before).

Pal Kenny Schaffer, another of those 'ham radio (N2KS) starter guys', has been working with a US television station ownership firm to create the first 'news stinger' technology that relies at least partially upon this emerging creative skill, plus of course, his years-ahead TV2Me technology. At Nashville TV station WKRN, tests began in mid-September (2005), immediately following the twin-devastation shocks of hurricanes Katrina and Rita, to fine tune the system. Here is how it works as I write these words. 'VJs' ('Video Journalists'), local people

with an interest in local news developments, are equipped with hand-held sub 8 ounce professional quality digital TV cameras - another of those fall outs from the digital revolution. In Nashville, 60 so-equipped people in as many counties. The 'locals' shoot video and capture audio from backyard region events, do rudimentary editing of what they 'shoot' using $1,000 range personal computers, and then using Kenny's TV2Me technology connect the 'report' back to the TV station using a cell phone, regular telephone or internet. The 'missing' ingredient here, and there is one, is the reliance on sub 8 ounce digital professional grade cameras to start the process. When (not if) Nokia and competitors begin to deliver cell phones with high quality digital video 'filming' capability built in, these field reporters will be able to shoot, edit, and transmit the entire news story from a hand held device which is so small as to escape casual detection for its true capabilities. In other words, virtually anyone with an appropriate 'grade' of 3G phone will become an 'eyewitness' to virtually any event imaginable. And within minutes, an entire world linked together by satellites and fiber optic cables, will also see the same event.

Schaffer's TV2Me is the 'software' that will make this initially possible - turning common folks into 'eyewitness reporters'. Yes, of course, there are downsides to this explosion in technological ability. Individual privacy is one area destined to attract ACLU attorneys. The leading edge of this has been poking at us for nearly five years as clever people with spare time on their hands have established 'webcams' (TV cameras connected to the web) at virtually every imaginable location from Nepal to New York. Web enthusiasts already have tens of thousands of webcam 'sites' they can visit, including one clandestinely installed inside a public toilet in downtown Chicago where you can, perverted or not, 'watch' as complete strangers enter a stall, strip down and dump into the toilet in focus. Yes, the lawyers will have a field day with this one.

Late in 2005, Schaffer found a financial angel from Hong Kong willing to invest an almost-8 figure sum (left of the decimal point) in the exploitation and marketing of TV2Me. During November, I had spent three days in Kenny's penthouse apartment hoping to make him see the value in *other* potential investor opportunities; I failed, and it is, after all is said and done, Kenny's machine. But life in the fast electronics lane never ends and shortly after returning to New Zealand in early December (2005) a box arrived in the mail from a SatFACTS subscriber in Australia. I was terribly impressed at what it did for US$750 list price and asked that a second box be sent to Kenny in

New York. From that day until now, we have been able to dial up one another using an Internet VoIP circuit and I can see everything Kenny does and he what I do. 'Videophones' were first demonstrated in 1929 by AT&T in the USA but this one happens to be leagues ahead of anything offered to date. First of all, the images are spectacular. Unlike normal webcam and other Internet video, the screen is clean, clear, and even in a four hour 'conversation' not once subject to annoying blips and image destroying interference. On a hunch I attached a local New Zealand TV channel to my box and Kenny went wild in New York; perfect image and perfect sound! No, not of the high commercial quality of TV2Me but for the average consumer - well, very satisfactory indeed. Certainly if I was in Madras or London and desirous of catching a New Zealand telecast of a Kiwi Rugby match, the service provided by a pair of these boxes (one in New Zealand to start the transmission, one wherever to receive it) would be 99% satisfactory; 100% if you had consumed a beer or two.

The Global Touch Solutions Australia (GTSA) system answer to TV2Me is actually a triple threat package: First, live from its own camera video plus audio to a distant point. Second, a sound only connection where video is not required or desired. And third - the ability to send virtually any video and sound composite 'signal' to a distant point, all built-in as the device arrives out of the box. It gets better. Because it uses VoIP (voice over internet protocol) technology, the connection from one device to another is free. Make that FREE. It is Skype and other VoIP with layers of additional features added, and again, whether you are 'on the line' one minute or ten hours, there is no user call connection fee. How much better than that can it get?

Where does all of this end?

Of course that is the challenge. The answer is, "it does not end." Not in my rapidly diminishing lifetime, probably not in my son Seth Brett's and possibly not in the lifetime of his long-distance creation of Seth Brett II. Television, images on a flicker-laden in-home screen, have graduated from the fascinating and surreal to the totally anticipated and taken-for-granted. Sir Arthur Charles Clarke correctly foresaw that the day would eventually arrive when no event, at no location on earth, would 'escape' eyewitness inspection by the teeming masses. In his soothsayer vision, he believed that when 'tiny handheld cameras connected to tiny backpack satellite transmitters' became practical, the visual impact of massacres and other human-driven mistreatment of fellow human beings would end. Perhaps. Equally likely, people will find 'motivation' when they are eyewitness to underground metro bombings in London or Tokyo for the television camera, no matter how common place it becomes, to share even more human tragedy and misery with those separated by distance and time from the horrific event.

I have been a most fortunate chappie, whether crawling down a drainage ditch in Cap Haitien (Haiti) shouldering an overweight video tape machine or sitting in the work station library of Doctor Clarke at 25 Barnes Place in Colombo, to have been an early day 'eyewitness' to the never ending, always changing planet we all - for the moment - designate as 'home'. May you, as well, live an interesting life whether you are an actual 'eyewitness' on the scene, or, like the billions who are not, viewing it on a screen of your own choosing.

Addendum: Accessing Coop's 60 years of publishing

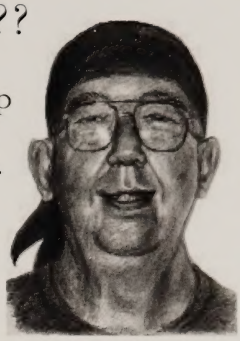
Approximately 80% of the published works of Robert B. Cooper remain available to anyone with a home PC equipped with Acrobat Reader. Publications have been scanned and are available on CD or DVD as appropriate to the size of the material. Go to www.bobcooper.tv for a listing of the available materials, pricing and ordering instructions. Or, send an email to Coop at skyking@clear.net.nz. Of special interest to those reading *"Television's Pirates: Hiding behind your picture tube"* will be:

Bob Cooper's TV Reception Addendum Volume One, Bob Cooper's TV Reception Addendum Volume Two, Bob Cooper's TV Reception Addendum Volume Three, and, the single set covering cable TV and introduction of home satellite era found in, "Bob Cooper's Definitive CATJ + CSD Collection."

"TELEVISION: The technology that changed our lives" is scheduled for mid-2006 release, hard cover, covering the step-by-step creation of the television broadcasting system.

Follow-up to "Television's Pirates" - cross-referenced sources for research material will be found at www.bobcooper.tv, including an alphabetical listing of individuals mentioned in "Television's Pirates" with page numbers where they appear.

What is a Coop???



Contrary to trade gossip he is neither dead nor hiding from authorities. Nor, is he the 'father of TV piracy' although 'son of' is a distinct possibility.

From 1955, Robert Britt Cooper (Jr) has been the primary 'link' between those who would-be pirates ("stealing copyright materials, rebroadcasting television without authorization to do so") and those millions upon millions of common folk who owed their television to this man and his publications. Of which there have been dozens, known primarily to fellow television technologists, stretching from DXing Horizons (1960) to SatFACTS Monthly (2006). From fringe area TV reception in the 50s through the development of cable TV, satellite TV and today's Internet television, Coop has been behind the scenes connecting hundreds of disassociated folks together for the intangible glory of new, first-time technology. Sir Arthur C. Clarke, the greatest technological mind of the 20th century and a friend of Coop, wrote in "How The World Was One" (chapter 33): "In 1983 Bob Cooper organized an amazing feat of logistics for which I shall always be grateful. He persuaded three of the principal manufacturers of home dish (satellite) systems to donate their complete systems to me (for use by the University of Moratuwa Arthur C. Clarke Centre for Modern Technologies)." This was the level of activity Coop did best—locating and merging technologists with worthy users, an uncanny ability to be at just the right place at a precise moment in history, and, to actually change history in the process. In these pages may be the best kept 'secrets' within the 60 year time span of television's influence on humanity. And to paraphrase Edward R. Murrow: "You are there."

jacket design: Jonathan Gullery
www.budgetbookdesign.com
Printed in the United States of America

US $29.95

"One of the chief promoters—indeed, pioneers—of home TVRO was an energetic journalist/electronics buff named Robert Cooper, who began publishing a monthly magazine in 1979 full of gossip, technical news, and advertisements. Coop's Satellite Digest (CSD) was essential reading for anyone in the field, and in its brief but hectic lifetime it chronicled the rise and fall of a multi-billion dollar industry."

—(Sir) Arthur C. Clarke, Chapter 33,
"How The World Was One"

"Virtually everyone in the 'real' TV world has a favorite 'Coop story' or anecdote. From my advance copy of 'Television's Pirates' I am confident there will now be thousands more. I was there for at least the satellite portion of this—a participant, even a 'pirate' by Coop's definition (I wear my eye patch and bandanna proudly!). I was also palsy with top execs at HBO and Showtime in this era, people who saw Coop either as a 'white knight' (one day) or the 'black curse' (the next day). But they never underestimated his unpredictable nature to swoop in from a totally new direction sending their apple cart into total disarray."

—Peter Sutro, formerly Patmar Technologies,
Nantucket, Mass.

Coop, Dr Arthur C. Clarke, Dr Yoshihiro Konishi, creator of the world's first mass production capable home satellite TV receiver; Sri Lanka, 1983. Photo: Kevin P. Cooper

Far North Cablevision, Ltd.
Mangonui, New Zealand

ISBN 0-9777980-2-X

9 780977 798025 52995